Agriculture Development Strategy (ADS)
2015 to 2035

Part: 1

Government of Nepal
Ministry of Agricultural Development

Singhdurbar, Kathmandu

PREFACE

TABLE OF CONTENTS

SUMMARY **1**

1 INTRODUCTION **21**
- **1.1 Objective of the ADS Final Report** **22**
- **1.2 Methodology** **22**
- **1.3 Organization of the ADS Final Report** **23**

2 ASSESSMENT OF THE AGRICULTURE SECTOR **23**
- **2.1 Current Status and Progress in the Agriculture Sector over the APP Period** **23**
- **2.2 Agriculture Sector Growth** **25**
- **2.3 Labor Productivity** **26**
- **2.4 Productivity Gaps and Limited Commercial Production** **28**
- **2.5 Agricultural Trade Deficit** **29**
- **2.6 Poverty** **32**
- **2.7 Food Insecurity** **34**
- **2.8 Positive Signals in the Agriculture Sector** **35**
- **2.9 APP Targets and Achievements** **38**
- **2.10 Review of Constraints to the APP Performance** **42**
  - 2.10.1 Implementation 42
  - 2.10.2 Legal Aspects 42
  - 2.10.3 Design Aspects 43
  - 2.10.4 Conflict 43
  - 2.10.5 Politics and Policies 43
  - 2.10.6 Investment 44
  - 2.10.7 Capacity and Human Resources 46
  - 2.10.8 Plans 46
- **2.11 Summary and Lessons Learned from the APP** **47**
- **2.12 Summary of Key Issues for the ADS** **48**

3 VISION OF THE ADS **52**
- **3.1 Future Trends affecting the Agriculture Sector in Nepal** **52**
- **3.2 Agricultural Transformation** **52**
- **3.3 Agricultural Labor Force** **52**
- **3.4 Urbanization** **53**
- **3.5 Change in Diet** **53**
- **3.6 Globalization and Trade** **53**
- **3.7 Outmigration** **54**
- **3.8 Green Technology and Low Carbon Emissions** **54**
- **3.9 Diversification** **54**
- **3.10 Distribution Systems** **54**
- **3.11 Quality and Safety** **54**
- **3.12 Cost of Energy** **55**
- **3.13 Climate Change, Natural Disaster and Global Crises Management** **55**
- **3.14 Degradation of Natural Resources** **55**
- **3.15 Fiscal Discipline** **55**
- **3.16 Vision Statement** **55**
- **3.17 Key Elements of the Vision** **56**
  - 3.17.1 Self-reliance 56
  - 3.17.2 Sustainability 56
  - 3.17.3 Competitiveness 56
  - 3.17.4 Inclusion 57
  - 3.17.5 Economic Growth 57
  - 3.17.6 Improved Livelihood 57

3.17.7 Food and Nutrition Security 57
3.18 Targets and Indicators 58

4 STRATEGIC FRAMEWORK 62
4.1 Implications of Agricultural Transformation for ADS 62
4.2 Agricultural Growth and Poverty Reduction 62
4.3 The ADS Framework: Impacts, Outcomes, Outputs, Activities 64
4.4 Impacts of the ADS 64
4.4.1 Food and Nutrition Security 65
4.4.2 Poverty Reduction 65
4.4.3 Agricultural Trade Surplus 66
4.4.4 Higher and More Equitable Income of Rural Households 66
4.4.5 Strengthened Farmers' Rights 66
4.5 The Outcomes and Outputs of the ADS 67
4.5.1 Improved Governance 67
4.5.2 Higher Productivity 69
4.5.3 Profitable Commercialization 72
4.5.4 Increased Competitiveness 73
4.6 ADS, Decentralization, and the New Federalist Structure 75
4.7 ADS and Agroecological Diversity 75
4.8 ADS and Socioeconomic Diversity of Farmers 76
4.9 ADS and Urbanization 79

5 ACTIVITIES OF THE ADS ACTION PLAN 81
5.1 The Framework of Outcomes, Outputs, and Activities 81
5.2 Activities Related to Outcome 1: Improved Governance 82
5.2.1 Activities related to Output 1.1 on Credibility of Policy Commitment 83
5.2.2 Activities related to Output 1.2 on Improved Coordination among Institutions involved in the ADS Implementation 84
5.2.3 Activities related to Output 1.3 on Integrated Planning 85
5.2.4 Activities related to Output 1.4 on Effective Implementation Support 86
5.2.5 Activities related to Output 1.5 on Mechanisms Established for Gender Equality and Social and Geographic Inclusion in the ADS 86
5.2.6 Activities related to Output 1.6 on Timely and Effective Monitoring and Evaluation 88
5.2.7 Activities related to Output 1.7 on Mechanisms established for Participation of civil Society in the Planning, Implementation, and Monitoring of the ADS 88
5.2.8 Activities related to Output 1.8 on Enhanced Capacity of Key Institutions involved in ADS Coordination and Implementation 89
5.2.9 Activities related to Output 1.9 on Improved Food and Nutrition Security of Most Disadvantaged Groups 90
5.2.10 Activities related to Output 1.10 on Performance-based Management System 91
5.3 Activities Related to Outcome 2: Higher Productivity 91
5.3.1 Activities Related to Output 2.1 on a Decentralized Extension System Responsive to Farmers and Agroenterprises' Need 94
5.3.2 Activities Related to Output 2.2 on a Decentralized Research System Responsive to Farmers and Agroenterprises' Need 97
5.3.3 Activities Related to Output 2.3 on a Strengthened Agricultural Education System 98
5.3.4 Activities Related to Output 2.4 on a Farming Sector composed of adequately sized Farmers that use Land efficiently and sustainably 99
5.3.5 Activities Related to Output 2.5 on Irrigation Area expanded equitably and viably, and improved Irrigation Efficiency and Management 101
5.3.6 Activities Related to Output 2.6 on Timely Access to Quality Agricultural Inputs at Affordable Price 106
5.3.7 Activities Related to Output 2.7 on Effective Implementation of Existing Seed Policies including Seed Vision 2025 through Sufficient Investment in Resources and Capacity Building. 107

5.3.8 Activities Related to Output 2.8 on a pragmatic Solution to Fertilizer Supply that is acceptable in the short-term, clearly indicates a Strategy for the medium and long term, and aims at Improving Productivity 108
5.3.9 Activities Related to Output 2.9 on a Variety of Improved Animal Breeds Appropriate for the Nepal Farming Systems Conditions are Available to Farmers 109
5.3.10 Activities Related to Output 2.10 on a Range of Mechanization Options Accessible to Farmers through the Private Sector 110
5.3.11 Activities Related to Output 2.11 on Improved Resilience of Farmers to Climate Change, Disasters, Price Volatility, and Other Shocks 112
5.3.12 Activities Related to Output 2.12 on Sustainable Farming, Good Agricultural Practices (GAP), Good Veterinary Husbandry Practices (GVAHP) are Established and Adopted. 112
5.3.13 Activities related to Output 2.13 on Subsistence production based forestry is developed into Competitive, Agriculture Friendly and Inclusive Forest Management Practice, with a Holistic and Community Based Landscape Approach to Natural Resource Management and Livelihoods improvement. 113
5.4 Activities Related to Outcome 3: Profitable Commercialization 115
5.4.1 Activities related to Output 3.1 on Improved Investment Climate for Agricultural Commercialization 116
5.4.2 Activities Related to Output 3.2 on Contractual Arrangements for Commercial Agriculture 117
5.4.3 Activities Related to Output 3.3 on Tax Policy that Supports an Efficient Commercial Agriculture Sector 118
5.4.4 Activities Related to Output 3.4 on Agricultural Finance and Insurance Providers that Supply a Variety of Competitive and Demand-driven Financial and Agricultural Insurance Products 119
5.4.5 Activities Related to Output 3.5 on Competitive Agricultural Value Chains that Increase Value Added and Benefits to Smallholders Farmers and Agroenterprises 120
5.4.6 Activities Related to Output 3.6 on Rural Roads Network Expanded 123
5.4.7 Activities Related to Output 3.7 on Agricultural Market Information and ICT Products for Market Intelligence 124
5.4.8 Activities Related to Output 3.8 on Rural Electrification and Renewable Energies 124
5.5 Activities Related to Outcome 4: Increased Competitiveness 124
5.5.1 Activities Related to Output 4.1 on Market Infrastructure Developement 125
5.5.2 Activities Related to Output 4.2 on Growth of Innovative Small and Medium Agroenterprises . 126
5.5.3 Activities Related to Output 4.3 on Growth of Food and Agricultural Products Exports 127
5.5.4 Activities Related to Output 4.4 on Enhanced Food Quality and Safety 128
5.6 Other Programs 130

6 COSTS 132
6.1 Approach to Cost Estimation 132
6.2 The Detailed Costs 133
6.3 Flagship and Core Programs: Complement not Duplicate 134
6.4 Financing by Private Sector, Community, Cooperatives and Farmers 134
6.5 ADS Costs and Government Budget for Agriculture 135
6.6 Schedule of Costs 141
6.7 ADS Recurrent and Capital Costs 144
6.8 Costs by Subsector 150

7 IMPLEMENTATION ARRANGEMENTS 154
7.1 Introduction 154
7.2 Traditional and Innovative Approaches 154
7.3 Overview of the ADS Organizational Structure 155
7.4 The Prime Minister 161
7.5 The National Planning Commission (NPC) 162
7.6 The National ADS Implementation Committee (NADSIC) 162
7.7 The National ADS Coordination Committee (NADSCC) and its Subcommittees 162
7.8 CADIC, RADC, DADC 163
7.9 ADS Implementation Support Unit (ADSISU) 164
7.10 ADS Implementation Trust Fund (ATF) 165

7.11 The Ministry of Agricultural Development (MOAD) 165
7.12 Other Ministries and Agencies 166
7.13 ADS Programs 166
7.14 Exit Strategy for Other Programs 166
7.15 ADS Flagship Programs 170
7.16 Food and Nutrition Security Program (FANUSEP) 170
7.17 Decentralized Science, Technology, and Education Program (DSTEP) 170
7.17.1 Community Agricultural Extension Service Centers (CAESC) 171
7.17.2 Decentralized Research System 173
7.17.3 Integration with the Agricultural Education System 174
7.18 Value Chain Development Program (VADEP) 174
7.18.1 Value Chain Development Alliances (VCDA) 175
7.19 Innovation and Agroentrepreneurship Program (INAGEP) 176
7.20 Leading Stakeholders: Farmers, Cooperatives, and Private Sector 176
7.21 Civil Society Organizations 178
7.22 Organizational Changes in MOAD and related Institutions 178
7.23 Exit Strategy for APP 179

8 FOOD AND NUTRITION SECURITY 181
8.1 Food and Nutrition Security Definition and Targets 181
8.2 Contribution of ADS Component 1 on Governance to Food and Nutrition Security 182
8.3 Contribution of ADS Component 2 on Productivity to Food and Nutrition Security 183
8.4 Contribution of ADS Component 3 on Commercialization to Food and Nutrition Security 184
8.5 Contribution of ADS Component 4 on Competitiveness to Food and Nutrition Security 184
8.6 Monitoring and Evaluation of Food and Nutrition Security in the ADS 185

9 MONITORING AND EVALUATION 186
9.1 Introduction 186
9.2 Monitoring and Evaluation of the ADS 186
9.3 Monitoring Vision, Outcomes, and Outputs 186
9.3.1 Linking Monitoring to Good Performance 192

10 ROADMAP 192
10.1 Government Commitment 193
10.2 Policies and Regulations for ADS Implementation 193
10.3 Consensus of Key Stakeholders 194
10.4 Development Partners Support 195
10.5 Early Milestones of the ADS 195
10.6 ADS as a Living Strategy 196

REFERENCES 197

END OF REPORT-1 182

LIST OF TABLES

Table 1 Indicators and Targets for ADS Vision 3
Table 2 Outcomes, Outputs, and Programs of the ADS 9
Table 3 Total (10-year) Cost of the ADS and Yearly Average 18
Table 4 Examples of Policies and Regulations needed for Implementing the ADS 19
Table 5: Key Indicators Related to Agriculture Sector 24
Table 6: Performance Indicator of Nepal and Neighboring Countries 26
Table 7 Labor and Land Productivity in Nepal in Agriculture and Other Sectors. 27
Table 8: Agricultural Land Indicators 27
Table 9 Productivity Country Comparisons 27
Table 10 Productivity Gaps for Selected Agricultural Commodities 28
Table 11 Competitiveness Indicators for Nepal 30
Table 12 Import and Export of High Value Crops, Cereals, MAPs and Dairy (2009/2010) 31
Table 13: Population and Poverty 33
Table 14: Annual Growth in Agribusiness Indicators 1996-2006 (%) 36
Table 15: Infrastructure Progress 37
Table 16 Summary of APP Targets and Achievements 39
Table 17 Summary of Key Issues for the ADS 48
Table 18 Preliminary Indicators and Targets for ADS Vision 59
Table 19 Indicators of ADS Impact 65
Table 20 Targets for the Strategic Components of the ADS 67
Table 21 Outputs for Outcome 1 on Improved Governance 68
Table 22 Outputs for Outcome 2 on Higher Productivity 71
Table 23 Outputs for Outcome 3 on Profitable Commercialization 73
Table 24 Outputs for Outcome 4 on Increased Competitiveness 74
Table 25 Landholdings Distribution 76
Table 26 Impact of ADS on Different Farm-size rural Households 78
Table 27 Outcomes and Outputs of the ADS 81
Table 28 Activities Related to Outcome 1 on Improved Governance 82
Table 29 Activities Related to Outcome 2 on Higher Productivity 91
Table 30: Irrigation Target by Water Source 104
Table 31 Activities Related to Outcome 3 on Profitable Commercialization 115
Table 32 Activities Related to Outcome 4 on Increased Competitiveness 124
Table 33 Other Programs 130
Table 34: ADS Action Plan 10-year Cost Summary 132
Table 35: Financing by Public and Private Sectors 135
Table 36: Indicative Agriculture Budget by Economic Activity-related Agencies 2013-14 135
Table 37: International comparison of budget orientation to agriculture 137
Table 38: ADS Action Plans Cost by Output and Proposed Implementing Agency 139
Table 39: Costs over Five Year Periods by Outcome 141
Table 40: Costs over Five Year Periods by Output 143
Table 41: Summary of Recurrent and Capital Costs 145
Table 42: Recurrent and Capital Costs by Output 146
Table 43: Costs by Sub-sector 150
Table 44: Subsector Costs by Activity Output 151
Table 45 Key Actors in the Implementation of the ADS 157
Table 46 Flagship and Core Programs of the ADS 167
Table 47 Indicators and Targets of Food and Nutrition Security in the ADS 182

Table 48 Output Indicators for Outcome 1 on Improved Governance.....187
Table 49 Output Indicators for Outcome 2 on Higher Productivity.....188
Table 50 Output Indicators for Outcome 3 on Profitable Commercialization.....190
Table 51 Output Indicators for Outcome 4 on Increased Competitiveness.....191
Table 52 Examples of Policies and Regulations Needed for Implementing the ADS.....193

LIST OF FIGURES

Figure 1 Strategic Framework of the Agriculture Development Strategy 5
Figure 2 The ADS Implementation and Coordination Mechanisms.....12
Figure 3 Composition of ADS Costs.....19
Figure 4 Low Development Stage of Nepal Agriculture.....25
Figure 5: Growth of Agricultural GDP 26
Figure 6 Net Import of Food and Agricultural Products 30
Figure 7 Trends in Government Expenditures in Agriculture Sector 44
Figure 8 Government Expenditures as Percent of Agricultural GDP 45
Figure 9: Donor Assistance to the Agriculture Sector 45
Figure 10 Elements of a Successful Strategy.....51
Figure 11: Agricultural Labor Force.....53
Figure 12 Growth and Poverty Reduction 63
Figure 13 Strategic Framework of the Agriculture Development Strategy 64
Figure 14: Irrigation Target by Water Source 104
Figure 15 Composition of ADS Costs 134
Figure 16: International Trend in Percent Budget Expenditure on Agriculture.....136
Figure 17: Cost Portions by Five Year Periods.....142
Figure 18: Summary of Recurrent and Capital Costs.....145
Figure 19: Costs by Sub-sector.....150
Figure 20 ADS Implementation and Organization Mechanisms.....161

LIST OF BOXES

Box 1 The ADS Mechanisms.....156

ABBREVIATIONS

ACI	Agrifood Consulting International
ADB	Asian Development Bank
ADBL	Agriculture Development Bank Limited
ADBN	Agriculture Development Bank Nepal
ADS	Agriculture Development Strategy
AEPC	Alternative Energy Promotion Centre
AGDP	Agricultural Gross Domestic Product
AHS	Annual Household Survey
AIC	Agricultural Inputs Corporation Ltd
AICL	Agricultural Inputs Company Limited
ALSC	Agriculture and Livestock Service Centers and Sub-centers
AMIS	Agency Managed irrigation System
AoA	Agreement on Agriculture
APMDD	Agribusiness Promotion and Marketing Development Directorate
APP	Agriculture Perspective Plan
APP-IAP	APP Implementation Action Plan
APP-ISR	APP Implementation Status Review
APPMAU	APP Monitoring and Analytical Unit
APPSP	Agriculture Perspective Plan Support Programme
AR	Agricultural Roads
ARSs	Agricultural Research Stations
ASCs	Agriculture Service Centers
ASEAN	Association of South-East Asian Nations
ASPR	Agriculture Sector Performance Review
BA	Bangkok Agreement
BFIs	Banking and Financial Institutions
BIMST-EC	Bay of Bengal Initiative for Multi-sectoral Technical and Economic Co-operation
BISEP-ST	Biodiversity Sector Support Programme – Siwalik Terai
BMI	Body Mass Index
BSP	Biogas Support Programme
CADIC	Central Agriculture Development Implementation Committee
CBOM	Community Based Operation and Maintenance Program
CBOs	Community Based Organizations
CBRE	Community Based Rural Electrification Program
CBS	Central Bureau of Statistics
CDO	Chief District Officer
CDR	Central Development Region
CF	Community Forestry
CGISP	Community Groundwater Irrigation Sector Project
CGS	Competitive Grant System
CIB	Credit Information Bureau
CIP	Community Irrigation Project
CLDP	Community Livestock Development Project
CME	Census of Manufacturing Establishments
CMIASP	Community-Managed Irrigated Agriculture Sector Project (ADB)
CNI	Confederation of Nepalese Industries
CPI	Consumer Price Index
DADC	District Agricultural Development Committee
DADOs	District Agriculture Development Offices/Officers
DANIDA	Danish International Development Agency
DDC	District Development Committee
DDCN	Dairy Development Corporation Nepal

DESTEP	Decentralized Extension, Technology and Education Program
DFCC	District Forest Co-ordination Committee
DFID	Department for International Development
DFO	District Forest Officer
DHM	Department of Hydrology and Meteorology
DLS	Department of Livestock Services
DLSO	District Livestock Office
DOA	Department of Agriculture
DOC	Department of Customs
DOF	Department of Forests
DOI	Department of Irrigation
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DRT	Debt Recovery Tribunal
DSCW	Department of Soil and Water Conservation
DSL	Deprived Sector Lending
DTO	District Technical Office
DTWs	Deep Tube Wells
DWIDP	Department of Water Induced Disaster Prevention (of MOI)
DWRDC	District Water Resources Development Committee
EA	Executing Agency
EDR	Eastern Development Regions
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
ESAP	Energy Sector Assistance Programme
EU	European Union
FAN	Floriculture Association of Nepal
FANUSEP	Food and Nutrition Security Program
FAO	Food and Agriculture Organization
FCO	Fertilizer Control Order, 1999
FECOFUN	Federation of Community Forestry User Groups Nepal
FFE	Food for Education
FFS	Farmer Field School
FFW	Food for Work
FG	Farmer's Group
FIs	Fertilizer Inspectors
FITTA	Foreign Investment and Technology Transfer Act 1992
FMIS	Farmer Managed Irrigation System
FMS	Farmer Marketing School
FNCCI	Federation of Nepalese Chambers of Commerce and Industries
FSN	Food Security and Nutrition
FSQ	Food Safety and Quality
FTA	Free Trade Area
FTA	Free Trade Agreement
FU	Fertilizer Unit
FWDR	Far Western Development Region
FY	Fiscal Year
GAASC	Gokuleshwor Agriculture and Animal Science College
GAP	Government Action Plan
GATT	General Agreements on Tariffs and Trade
GBB	Grameen Bikas Bank
GDP	Gross Domestic Product
GEED	Gender Equity and Environment Division

GESI	Gender Equity and Social Inclusion
GI	Geographical Identification
GIZ	Gesellschaft für Internationale Zusammenarbeit, GmbH
GO	Government Organization
GON	Government of Nepal
GVP	Good Veterinary Practice
Ha	Hectare
HARP	Hill Agriculture Research Project
HBS	Household Budget Survey
HICAST	Himalayan college of Agriculture Sciences and Technology
HIMALI	High Mountain Agribusiness and Livelihood Improvement Project
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HLNFSSC	High Level Nutrition and Food Security Steering Committee
HLTF	High Level Task Force
HMGN	His Majesty Government of Nepal
HRD	Human Resources Development
HRM	Human Resources Management
HRP	Hill Research Programme
HVCA	Hazard, Vulnerability and Capacity Assessment
HVCs	High Value Commodities
IAPP	Interim Agriculture Perspective Plan
IAU	Independent Analytical Unit
IBT	Inter-Basin Transfer
ICIMOD	International Centre for Integrated Mountain Development
ICT	Information and Communication Technology
IDA	Iron Deficiency Anemia
IDD	Iodine Deficiency Disorder
IDD/IDSD	Irrigation Development Division/Irrigation Development Subdivision
IEE	Initial Environmental Examination
IFAD	International Fund for Agriculture Development
ILAC	International Laboratory Accreditation Cooperation
IMD	Irrigation Management Division of DOI
IMT	Irrigation Management Transfer
INAGEP	Innovation and Agro-Enterprise Program
INGO	International Non Government Organization
IP	Irrigation Policy
IPC	Integrated Food Security Phase Classification
IPM	Integrated Pest Management
IPNMS	Integrated Plant Nutrient Management Systems
IPP	Independent Power Producers
ISF	Irrigation Service Fee
ISPM	International Standards for Phyto-sanitary Measures
IWRM	Integrated Water Resources Management
IWRMP	Irrigation and Water Resources Management Project (World Bank)
JICA	Japan International Cooperation Agency
JT/A	Junior (agricultural) Technician/Assistant (of DOA)
Km	Kilometer
LF	Leasehold Forestry
LFP	Livelihoods and Forestry Programme
LSC	Livestock Service Centre
LSGA	Local Self Governance Act
M&E	Monitoring and Evaluation
M4P	Market for Poor
MDG(s)	Millennium Development Goal(s)

MFDB	Microfinance Development Bank
MFI	Micro Finance Institution
MFN	Most Favored Nation
MFSC	Ministry of Forest and Soil Conservation
MGSP	Mini-Grid Support Programme
MICS	Multiple Indicator Cluster Survey
MoAC	Ministry of Agriculture and Cooperatives (renamed May 2012)
MoAD	Ministry of Agricultural Development (from May 2012)
MoE	Ministry of Environment
MoEn	Ministry of Energy
MoF	Ministry of Finance
MoFSC	Ministry of Forestry and Soil Conservation
MoHP	Ministry of Health and Population
MoI	Ministry of Irrigation
MoLD	Ministry of Local Development
MoLRM	Ministry of Land Reform and Management
MOSPI	Ministry of Statistics and Programme Implementation
MoST	Ministry of Science and Technology
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MPI	Multidimensional Poverty Index
MRL	Maximum Residue Limit
MSNP	Multi-sector Nutritional Plan
Mt	Metric ton
MTEF	Medium Term Expenditure Framework
MWDR	Mid Western Development Region
NADC	National Agriculture Development Committee
NAFSP	Nepal Food Security Project
NAP	National Agricultural Policy
NAPA	National Adaptation Programme of Action to Climate Change
NARC	Nepal Agriculture Research Council
NARDF	National Agriculture Research and Development Fund
NASDP	National Agriculture Sector Development Priority
NBL	Nepal Bank Limited
NBS	National Bio-Diversity Strategies
NBTI	National Banking Training Institute
NCI	Non-Conventional Irrigation
NDAC	National Development Action Committee
NEA	Nepal Electricity Authority
NEKSAP	Nepal Khadhya Surakshya Anugaman Pranali (Nepal Food Security Monitoring System)
NEPAP	Nepal Environmental Protection Action Plan
NFIWUAN	National Federation of Irrigation Water Users Association of Nepal
NFP	National Fertilizer Policy 2002
NFSCC	Nutrition and Food Security Coordination Committee
NGO	Non-Governmental Organization
NGO	Non-Governmental Organization
NITP	New Irrigation Technology Projects
NLSS	National Living Standard Survey
NPC	National Planning Commission
NPL	Non-Performing Loan
NPV	Net present value
NRB	Nepal Rastra Bank (Central Bank)
NRM	Nepal Resident Mission of ADB
NRREP	National Rural and Renewable Energy Program

NSC	National Support Committee
NSC	National Seed Company Private Limited
NSCA	National Sample Census of Agriculture
NTB	Non-tariff Barriers to Trade
NTFPs	Non Timber Forest Products
NTIS	Nepal Trade Integration Strategy
NWP	National Water Plan
NWRS	National Water Resources Strategy
O&M	Operation and Maintenance
OFMP	Operational Forest Management Plan
OFWM	On-farm Water Management
OHPI	Oxford poverty and Human development Initiative
OVOP	One Village One Product
PACT	Project for Agriculture Commercialization and Trade
PF	Private Forests
PIM	Participatory Irrigation Management
PICCD	Policy and International Cooperation Coordination Division
PPP	Public Private Partnership
PPP	Prioritized Productivity Package
PPS	Pocket Package Strategy
PRA	Participatory Risk Assessments
PRSP	Poverty Reduction Strategy Paper
PSC	Productive Sector Credit
PTA	Preferential Trade Agreement
RADC	Regional Agriculture Development Committee
RAP	Rural Access Programme
RARS	Regional Agricultural Research Station
RBB	Rastriya Banijya Bank
RCA	Root-cause Analysis
RE	Renewable Energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDP	Rural Energy Development Programme
RFSDCP	Rural Finance Sector Development Cluster Program (Subprogram 2)
RFTG	Rural Finance Thematic Group
RID	Regional Irrigation Directorate
RIO	Regional Irrigation Office
RIP	Rural Infrastructure Development Policy
RISMP	Raising Incomes of Small and Medium Farmers Project
RMDC	Rural Microfinance Development Centre
RO	Rural Organization
Rs	Rupees (Nepali Currency)
RSRF	Rural Self Reliance Fund
RTAs	Regional Trading Agreements
SAFTA	South Asian Free Trade Area
SAPL	Second Agriculture Programme Loan
SAPTA	South Asian Preferential Trading Arrangement
SC	Service Centers
SCC	Savings and credit cooperative
SDC	Swiss Agency for Development and Cooperation
SEAN	Seed Entrepreneurs' Association of Nepal
SFCL	Small Farmers Cooperative Limited
SFDB	Small Farmers Development Bank (Sana Kisan Bikas Bank)
SGD	Sustainable Development Goal
SME	Small and Medium Enterprise

SOP	Standard Operations Procedures
SPS	Sanitary and Phyto-Sanitary Measures
SRI	System of Rice Intensification
SSC	Service Sub Centers
SSN	Social Safety Nets
SSSC	SEAN Seed Service Center
STC	Salt Trading Corporation
STWs	Shallow Tube Wells
TA	Technical Assistance
TLDP	Third Livestock Development Project
TRIPs	Trade Related Intellectual Property Rights
TU	Tribhuvan University
TWT	Technical Working Team
TYAE	Three Years Average Ending
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
VADEP	Value Chain Development Program
VAM	Vulnerability Assessment Map
VARG	Vulnerability and Adaptation Resource Group
VAT	Value Added Tax
VCA	Value Chain Analysis
VDC	Village Development Committee
WB	World Bank
WDO	Women Development Office
WDR	Western Development Region
WFP	World Food Programme
WTO	World Trade Organization
WUAs	Water User Associations
WUG	Water Users' Group

CURRENCY EQUIVALENTS
(as of 20 June2013, Nepal Rastra Bank)

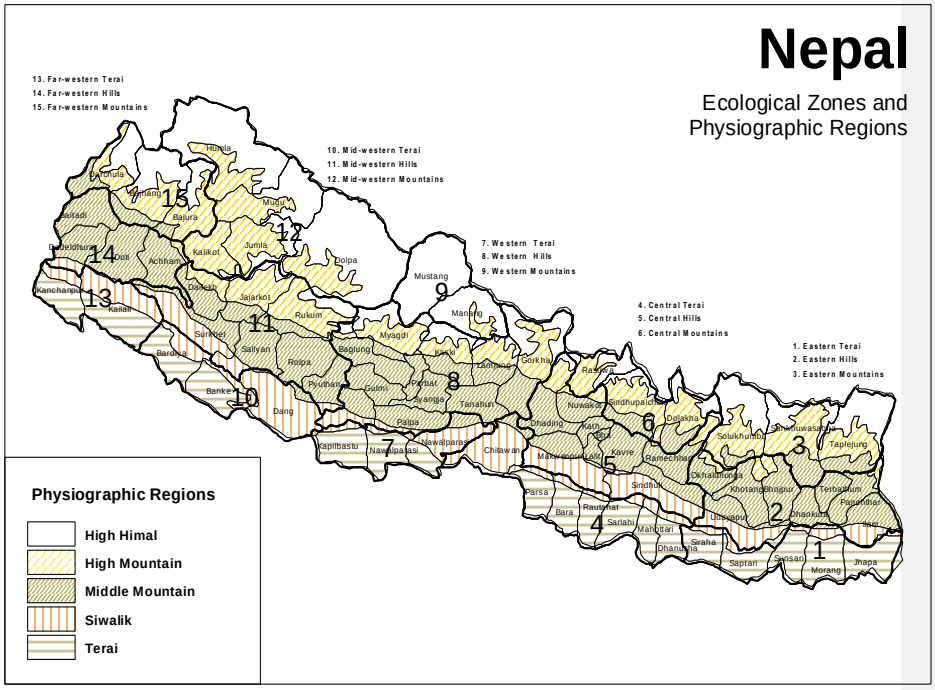
Nepal Rupees	–	United States dollars
Rs. 95	=	$ 1.00

GLOSSARY OF TERMS

Term	Explanation
Self Reliance	A quality of people who are able to rely on their own resources; people who are resilient to economic, social and environmental shocks and changes.
Sustainability	Practices and consumption of resources that have capacity to endure without long-term negative social, economic, or environmental impacts.
Competitive	Successfully able to meet competition; through worker skills, farming practices, products and businesses that are efficient, profitable and of sufficient quality to gain a satisfactory share of the market in competition with products and services from elsewhere.
Commercialization	The transformation from subsistence production (production for own consumption), to production for sale of surplus products and services
Agribusiness	A general term for small, medium and large businesses and cooperatives involved in farming, processing and marketing of agricultural products, and businesses providing products and services specifically to the agriculture sector, such as farm machinery, fertilizer, agro-veterinary products and advisory services.
Agro-enterprise	Commercial farms, agricultural cooperatives, livestock herding group, or other organization, including for-profit businesses, non-profit entities, non-government and government agencies that carry out commercial agricultural activities.
Inclusive	Pluralistic; "inclusive development" includes women, youth, disadvantaged groups, minority ethnic groups, *janajati*, people in remote areas, not just the mainstream or majority.
Food poverty	Poverty related to food; inability to obtain sufficient food or adequate nutrition seasonally, chronically, and within geographic, demographic or social groups. Usually measured with reference to the monetary equivalent of a basket of foods needed to provide a certain number of calories and other nutrients.
Farmers' Right	Rights of farmers in politics and governance; ADS provides support for farmers to participate and express their opinions in key committees of the ADS related to planning, formulation, implementation, monitoring and evaluation; the ADS institutionalizes these rights by making the farmers' representatives members of the committees at central level, regional, district, and in the community service centers at the VDC level. Farmer organizations in some nations have lobbied to achieve legislative support for "*the right to farm*", relating to land use management, commercial law, and the freedom to choose farming as a livelihood or business.
Voucher	A bond or allowance which is worth a certain monetary value and which may be spent only for specific reasons or on specific goods. At present government provides services (e.g. training and advice) and goods (e.g. seeds and fertilizers) to farmers via programs where the government agency decides where and who will receive the value of the services and goods. A government voucher scheme for farmers would give the farmer the power to choose where and when to redeem the voucher for its value of goods and services that are provided by government approved providers.

Nepal

Ecological Zones and
Physiographic Regions



SUMMARY

1. The *Final Report of the Agriculture Development Strategy 2015-2035* (henceforth ADS) is prepared by the Ministry of Agricultural Development in consultation with National Peasants' Coalition. This ADS Final Report was prepared under the Technical Assistance (TA) 7762 NEP, funded by Government of Nepal (GON) with support from Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), European Union (EU), Food and Agriculture Organization (FAO), Swiss Agency for Development and Cooperation (SDC), Japan International Cooperation Agency (JICA), Denmark Agency for International Development (DANIDA), World Food Program (WFP), United States Agency for International Development (USAID), Department for International Development (DFID), the World Bank, the Australian Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

2. After finalizing the Agriculture Development Strategy (ADS) from the ministry side, the Agriculture and Water Resource Committee of Legislature-Parliament (AWRC-LP) and National Planning Commission (NPC) showed interest and ownership on the long term strategy. AWRC-LP provided the suggestions and feed-back (attached as Appendix 6) to the Ministry of Agricultural Development (MOAD) after holding series of discussions and consultations with the concerned stakeholders including NPC, Chief Secretary and different line Ministries (Agricultural Development, Irrigation, Energy, Supply, Industry, Cooperative and Poverty Alleviation, Physical Infrastructure and Transport, Urban Development, Finance, Land Reform and Management, and Education) to ensure widespread commitment for effective implementation of the Strategy. Similarly, AWRC-LP held meetings with development partners to ensure commitment for resources and implementation support. Further, it sought suggestions from experts and representative of farmers, value chain actors to add different perspectives in the strategy. The National Planning Commission also provided the suggestions (attached as Appendix 7) on the Agriculture Development Strategy (ADS). All those suggestions have been taken into account and will be the part of the ADS. Appreciating the comprehensiveness of the suggestions and dynamic nature of the strategy, the suggestions are broadly categorized as policy, programmatic and institutional. The institutional suggestions have all been incorporated in the ADS. Policy level suggestions made by the Committee have been largely addressed. Further, concerned Ministries and other implementing agencies will address the policy related suggestions while formulating specific Policies and Acts. The programme level suggestions and suggestions from the NPC will be addressed in periodic and annual work plan and budget of the government ministries and other implementing agencies. Based on the suggestions of AWRC-LP, Ministry of Agricultural Development will report quarterly to the committee about ADS implementation status, developing different indicators in consultation with the NPC.

3. The objective of this Final Report is to formulate a 20-year strategic plan *including a 10-year Action Plan and Roadmap* based on the assessment of the current and past performance of the agriculture sector.

ASSESSMENT OF THE AGRICULTURE SECTOR

4. **Current Situation of the Agriculture Sector in Nepal.** Nepal's agricultural status is in a low development stage. Though majority of the population is engaged in agriculture, productivity and competitiveness of the sector are low; and adoption of improved technology is limited. Even though most cultivated area is devoted to cereals, there is a growing food trade deficit and malnutrition is high. Some subsectors such as dairy processing, poultry, tea, vegetable seed and fisheries have shown encouraging signs , but overall, these positive signs are not yet sufficient to lift a large

number of people engaged in agriculture out of poverty and make a dramatic dent in reducing malnutrition and assure food security of the nation.

5. **Past Situation.** When the long-term agricultural strategic plan known as the Agriculture Perspective Plan (APP) was launched in 1995-96, Nepal's agriculture sector was in a worse situation than today. The current low development status of Nepal agriculture tends to make us forget that over the past two decades, there is significant improvement in living standards and that the agriculture sector overall is performing better today than in the past. There are improvements in productivity, infrastructure, food security, and poverty reduction. However, some indicators such as food and agricultural trade deficit and land per capita have shown regress.

6. **Inability to achieve the anticipated growth.** In spite of progress compared to the past, agriculture sector in Nepal is still in a low development stage. Though Nepal has improved in agriculture sector, but the improvement has been too little and the change has been too slow, both in terms of what the country had planned to achieve and relatively to the progress made by its neighbors over the same period of time. Nepal's growth, both in agriculture and in the rest of economy, has been slow. In the case of agriculture, Nepal's agricultural growth has been not only slow (about 3.2% during 1995/96-2015/16), but also highly variable with a coefficient of variation as much as 50.1%. Nepal's youth and some of its most productive labor force have looked for job elsewhere. About 513 thousand migrants have left Nepal in 2014/15 and there has been a growing trend for the past 15 years.The migrants have sent home huge amount of remittances, estimated at about $ 6.1 billion per year (representing 30.9 % of GDP in 2014/15), but most of these resources have gone into consumption and loan repayment rather than capital formation and investment.

7. **Factors for Weak Growth Performance.** A number of factors explain the weak growth performance of agriculture sector over the past two decades. During this period, the 12-year conflict that concluded in 2006 had adverse effects on the agriculture sector. Hundreds of thousands of rural households left the land behind and moved to the cities-mostly to the Kathmandu Valley; others moved abroad. These movements of rural population resulted in a situation of labor and investment scarcity in rural areas. Rapidly growing urbanization implied that large tracts of peri-urban fertile agricultural land have been converted to residential uses. Political instability resulted into government instability and in the absence of commitment from leadership to implement policies, plans, and programmes. Many policies are made for agricultural development, but they remained only in papers. In many cases, they lacked the supporting legislation and resources for implementation. Plans have been formulated, but sometimes the formulation was poor, the targets ambitious, and the institutional capacity for implementation inadequate. Furthermore, both public and private investment were limited. During the 20 years of the APP investment in agriculture by government and development partners as proportion of the agri-GDP declined during the first decade till 2005 and has increased in the following decade, but not much private investment has taken place. Similarly, human resources capacity was limited. Incentives for civil servants have been few and skilled professionals and labor have often looked for better opportunities abroad.

8. Within the context of these factors, the APP became a plan with a mixed performance. In some cases, its targets were achieved, such as in roads, horticulture and community forest; however in the case of cereals, fertilizer and seed, the performance was poor; in the case of livestock and irrigation the performance was mixed; and overall agricultural GDP growth was weak. The APP formulation was based on a narrow view of technology excessively focused on a green revolution perspective that is not appropriate for large parts of Nepali agro-ecology. APP implementation was poor because of limited support in terms of resources, policies, and institutions needed to carry out its program. APP ownership was weak and the leading stakeholders of the agriculture sector–farmers, private sector, cooperatives–were not actively involved in its formulation and

implementation. Land issues were left unresolved. The lessons learned from the APP experience have been incorporated in the formulation of the ADS. Among these lessons are the need of ensuring governance, promoting effective participation of stakeholders, addressing land issues, effective support to decentralized research and extension, and promoting commercialization and competitiveness.

ADS AND THE PROCESS OF AGRICULTURAL TRANSFORMATION

9. The ADS is expected to guide the agriculture sector of Nepal over the next 20 years. Over the course of this period, the structure of the agriculture sector in Nepal will change considerably and agribusiness and non-farm rural activities will grow in comparison to agriculture. Strengthened linkages between agriculture and other sectors in the economy will be critical to the reduction of poverty particularly in rural areas where the development of non-farm activities based on agriculture will be fundamental for the growth of an overall robust economy, a more balanced rural economy and employment generation.

10. In this context, it is worth emphasizing that the ADS considers the agriculture sector in its complexity and encompasses not only the production sectors (crops, livestock, fisheries, forestry) but also the processing sector, trade and other services (storage, transportation and logistics, finance, marketing, research and extension).

11. The ADS is formulated taking into account the conceptual framework of agricultural transformation of Nepal from a society primarily based on agriculture to one that derives most of its income from services and industry. This process will have profound implications for the ways the Nepali population will shape their food production and distribution systems, the development of rural areas including the rural non-farm sector, labor and land productivity, trade balance, employment and outmigration of the youth, the role of women in agriculture, and management of natural resources in the context of increasingly more severe climate change events. The ADS will ensure that the process of agricultural transformation is accelerated and molded according to the aspirations and constraints of Nepali society.

VISION OF THE ADS

12. The ADS action plan and roadmap are formulated in order to move towards the ADS vision formulated by stakeholders as follows: “A self-reliant, sustainable, competitive, and inclusive agriculture sector that drives economic growth and contributes to improved livelihoods and food and nutrition security leading to food sovereignty.” Various indicators and targets to monitor progress towards the vision during implementation of the ADS are reported inTable 1

Table 1 Indicators and Targets for ADS Vision

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
Self-reliant	Self-sufficiency in foodgrains	16.0 % trade deficit in foodgrains	0% trade deficit	0-5% trade surplus	0-5% trade surplus
Sustainable	Year-round irrigation	25.2% coverage	35%	60%	80%
	Soil organic matter	1.96%	3.00%	3.92%	4%
	Degraded land ha	3.72 million ha	2.88 m ha	2.56 million ha	1.6 million ha

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
	Forest cover	44.7%	44.7%	44.7%	44.7%
	Agricultural land productivity (AGDP/ha)	$ 3,278	$4,184	$ 5,339	$8,697
	Agribusiness as % GDP	8%	9%	11%	16%
Competitive	Agricultural trade balance	Trade deficit $ 1,123 million	Trade deficit $ 1,073 million)	Trade deficit $ 882 million	Trade surplus $ 508 million
	Agricultural Exports	$ 255 million	$ 456 million	$ 814million	$ 2,598 million
Inclusive	% of farm land owned by women or joint ownership	16 %	20%	30%	50%
	% of farmers reached by ag programs	18.2%	22%	26%	32%
Growth	Average annual growth of AGDP	2.23% (*)	4%	5%	6%
Livelihood	AGDP/ Agricultural labor	$ 835	$ 1,029	$ 1,268	$ 1,926
	Poverty in Rural Areas	24.3 %	19%	15%	9%
Food and Nutrition Security	Food Poverty(^)	27.6%	19%	13%	6%
	Nutrition	37.4 % stunting; 30.1 % underweight; 11.3 % wasting; 18.1 % women with low BMI	29% stunting; 20% underweight; 5% wasting; 15% women with low BMI	20% stunting; 13% underweight; 2% wasting; 13% women with low BMI	8% stunting; 5% underweight; 1% wasting; 5% women with low BMI

(*): Three Year Average Ending (TYAE) 2015/16;
(^) Data from Household Budget Survey 2014/15, NLSS and Annual Household Survey correlated with agri-GDP
Note: Assessments are based on 1995/96-2015/16 data covering the APP period

STRATEGIC FRAMEWORK

13. In order to achieve its vision the ADS will accelerate agriculture sector growth through four strategic components related to governance, productivity, profitable commercialization, and competitiveness while promoting inclusiveness (both social and geographic), sustainability (both natural resources and economic), development of private sector and cooperative sector, and connectivity to market infrastructure (e.g. agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (e.g.rural electrification, renewable and alternative energy sources). The acceleration of inclusive, sustainable, multi-sector, and connectivity-based growth is expected to result in increased food and nutrition security, poverty reduction, agricultural trade competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights. Figure 1 provides an illustration of the strategic framework of the ADS.

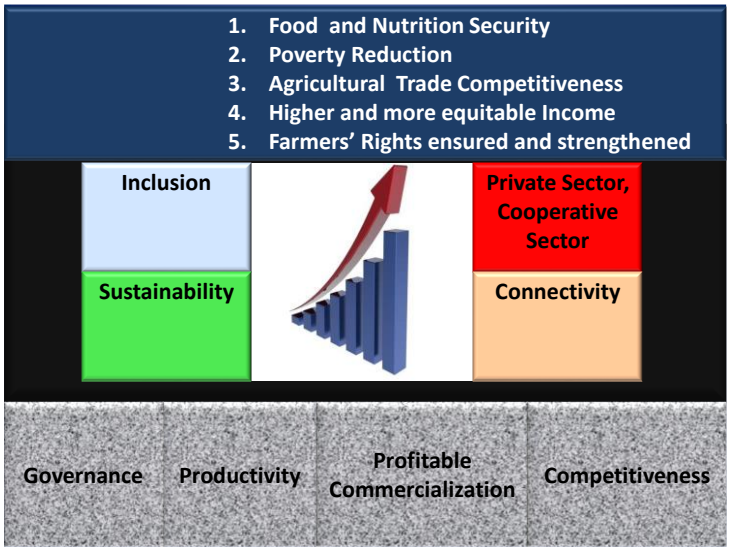


Figure 1: Strategic Framework of the Agriculture Development Strategy

COMPONENT OF THE ADS FRAMEWORK

14. **Improved Governance.** Governance in the ADS refers to the capacity of government to design, formulate and implement policies and discharge functions. In the absence of such capacity the ADS will not be implemented successfully. Key elements of governance include: accountability, participation, predictability, and transparency.

15. In spite of frequent pronouncements in support of the agriculture sector, policies to support the sector have either not been formulated or have not been implemented. Compounding the problem are the frequent changes in tenure of the key leaders for policy, programme, and project implementation and also issues of consistency of policy itself. The result has been a loss of credibility in policy that is responsible in part for the failure of previous programs. In order to avoid this situation the ADS sets clear targets for improved credibility of policy commitment, engages leading stakeholders (both from government and civil society) in the formulation and implementation, and will monitor appropriately and continuously. The ADS also recognizes the complexity of the agriculture sector requiring coordination and effective planning among different agencies, different levels (central and local), and different stakeholders (government, civil society, development partners). Effective coordination and planning will be key outputs to achieve the governance outcome. The ADS Coordination Section (Implementation Support Unit) under the Policy and International Cooperation Coordination Division (PICCD) of Ministry of Agricultural Development with strong capacity will facilitate various institutions to implement the ADS. At the same time, the inclusion aspects of the ADS (gender, disadvantaged groups, geographically disadvantaged) will be taken into account through appropriate mechanisms that also ensure participation of stakeholders and accountability to civil society in the planning, implementation, and monitoring of the ADS. Capacity of human resources both within the government and selected organizations in civil society (eg. farmers', private sector and cooperatives' organizations) will contribute to the overall strengthening of the governance of the ADS.

16. Without credible programs to alleviate the food and nutrition security conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. One of the overall goals of the ADS is to improve food and nutrition security of its population. This is a long term goal towards which all the components of the ADS contribute. However, in the short term, the test of governance of the ADS is in ensuring the capacity of the government to meet the most urgent needs of the most disadvantaged groups. In order to respond to this governance test, a national flagship program on food and nutrition security has been included in the ADS under the governance component which will closely coordinate with the Multi-sector Nutrition Plan (MSNP) and Food and Nutrition Security Plan of Action (FNSP). The ADS vision is aligned with the Multi-Sectoral Nutritional Plan (MSNP) and the Food and Nutrition Security Plan of Action (FNSP). FNSP, as approved by MOAD in early 2016, is an integral part of ADS to implement Food and Nutrition Security programs which complement MSNP too.

17. The Governance component is perhaps the most crucial one in order to achieve the vision of the ADS. Its effective implementation requires an improved management based on performance and results. Measures to promote a system of results-based management will be piloted within this component.

18. **Higher Productivity.** Improved productivity of land and labor is the cornerstone of the ADS. Agricultural productivity requires the adoption of appropriate technologies and know-how to increase efficiency and sustainability of agricultural production consistently with market demand and food security needs of subsistent farmers. The measures to raise agricultural productivity include those related to (i) effective agricultural research and extension; (ii) efficient use of agricultural inputs; (iii) efficient and sustainable practices and use of natural resources (land, water, soils, and forests); and (iv) increased resilience to climate change and disasters.

19. In the ADS, the government sector will be one among other actors including private sector, cooperative sector, NGOs, leading farmers, and farmer field schools involved in the generation and dissemination of technology. The government sector however has a key role in coordinating the efforts of other actors, facilitating implementation of policies and plans, monitoring performance, and enforcing regulations.

20. The ADS recognizes that already a number of actors are involved in agricultural extension and over time their presence will become even more important. Rather than advocating a massive increase of human resources in the public extension service, the ADS promotes capacity building of government's existing human resources and the transformation of their role from delivery of extension services to overall facilitator of agricultural extension services. This change in role will be accompanied by a greater emphasis on the delivery at the VDC level, where 3,157 Community Agricultural Extension Service Centers (CAESC) will be established.

21. The ADS also recognizes the critical importance that farmers' access and control of the means of production – primarily land – has for the success of the strategy. Critical land issues such as tenancy, fragmentation, degradation, and land use planning need to be resolved over the course of the ADS and their resolution will require the participation of the farmers' organizations, cooperatives, and private sector in order to find equitable and efficient mechanisms for enhancing land productivity. Increase in land productivity should be reflected in increased benefits for the farmers and the livelihoods of the rural households. Moreover, given the dominance of smallholder farmers, subsistence farmers, and women farmers in the agrarian structure of Nepal, promotion of farmer and women organizations and cooperatives will be fundamental to achieve economies of scale in technology dissemination, marketing, finance, and logistics.

22. Productivity enhancement depends on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agriculture sector depend on the access and adoption to improved technology and effective management of natural resources and other inputs to achieve total factor productivity increase. While subsidies may be an expedient approach in the short term to address targeting issues or market failures, in the long term they are not a viable, efficient, or effective solution to sustainable improvement of productivity. The ADS will focus on generation and adoption of sustainable technologies and practices and will pilot a voucher system to empower farmers in their choice of inputs and extension services.

23. **Profitable Commercialization.** The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agriculture sector from a substantial proportion of farming carried out solely for subsistence, and by default (i.e. no other livelihood or household food security options are available to the household), into a sector in which the vast majority of farming is carried out for commercial purposes and is connected to the local, national, and international markets.

24. This transformation towards a more commercialized agriculture requires a set of measures that focus not only on farmers, but, fundamentally on agroenterprises involved in the commercialization of agricultural products and services. These enterprises include input providers, producer companies, marketing cooperatives, storage operators, logistic companies, agroprocessors, importers and exporters of agricultural and food products, distributors, traders, and agricultural service providers (including financial service providers, insurance providers, business service providers). These enterprises may be micro, small, medium, and large.

25. Profitable commercialization requires the combination of a number of measures such as an enabling investment climate and a number of reforms to strengthen contractual arrangements, taxes, and financial services to promote an efficient commercial agriculture. The ADS also emphasizes the need of prioritizing a number of value chains to ensure they achieve scale economies and therefore have national income and employment impact. Finally, the ADS supports the improvement of physical and institutional infrastructure to promote commercial agriculture (agricultural roads, market information and market intelligence systems).

26. **Increased Competitiveness.** Accelerated agricultural growth is the best way to come out of poverty for the millions in Nepal still living below the poverty line. Experience from Asian economies has demonstrated that one of the most successful ways to stimulate growth in agriculture is by creating an enabling investment climate for agricultural entrepreneurs and by creating increased access to the critical knowledge and inputs needed to achieve higher levels of productivity. For growth to be sustainable it needs to be rooted in structural changes and improvements that do not evaporate with fluctuations in global prices, disappear after a bad monsoon or depend on concessional external funding. The ADS has consequently placed its core focus on *competitiveness*. Competitiveness is founded on: a competent, hard-working and efficient work force; a clear understanding of what makes Nepal unique in the global market place; and, the determination and entrepreneurship to maximize productivity and innovate with new products and processes based on the country's natural endowments.

27. To achieve this vision, the energy and inventiveness of the private sector is essential. Access to communication and better education has enabled Nepali producers to learn better practices and access market information, while stability, rising market prices for land and remittances have created the disposable cash to make these investments.

28. These changes demand an approach to agricultural promotion and competitiveness that acknowledges the vital role of the private and cooperative sector, without conceding the critical function of the government to oversee, regulate and facilitate growth that is both competitive and pro-poor. This blending of private and cooperative sector energy and innovation with the steady hand of government to ensure positive public outcomes is the goal of public-private partnerships. The essence of these partnerships is to create some form of "*additionality*" that would not have been possible without the other's involvement. From the public point of view it affords the opportunity to leverage its funds and channelize outcomes while for the private and cooperative sector, the addition of public funds reduces the perceived exposure to investing in high-risk high-potential projects.

29. **Farmers' Rights.** The ADS provides institutional mechanisms to ensure farmers' participation in the planning, decision making, implementation, and monitoring of the Strategy. In particular, the ADS ensures that farmers' representatives are part of the leading coordination mechanisms of the ADS at the center and local level; they are part of the Steering Committee of the ADS Implementation Committee; they are in the board of NARC; they are in the board of 3,157 VDC-based Community Agricultural Extension Service Centers (CAESC); they are in the board of Commercial Agricultural Alliances and Value Chain Development Alliances; they are consulted when formulating policies for the agriculture sector; they are consulted when undertaking monitoring of the sector; and they are members of the Food Security Networks at the District level. By having their representatives in all these institutions, farmers will be able to ensure and strengthen their ownership in the ADS.

30. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistently with the principles of the Constitution of Nepal. Specific initiatives will be formulated to deepen the understanding of farmers' rights, promoting these rights, monitoring them, and protecting them as part of the activities under the Governance component of the ADS.

31. The ADS also ensures the establishment of a high level fully authorized and permanent type of Farmers' Commission to help advance farmers' right. The specific TOR, composition, and regulation of the Farmers' Commission will be formulated in the early stages of ADS implementation.

32. **Commercial farmers, Subsistence farmers, and the Landless.** The ADS recognizes the need of adapting approaches to different agro-ecological areas and different farm categories. The ADS promotes a decentralized approach to science and technology and empowers communities to reorient the extension, research, and education system to meet their needs. The services covering the small commercial farmer will be generally inappropriate to the subsistence farmer, and in the context of institutions targeted to the small commercial farmer (eg value chains) the subsistence farmer will be left out except for those few who can respond to the approaches suitable for the small commercial farmer. Therefore the ADS through its Community Based Extension Service Centers (the CAESC) and its Market for the Poor approach to value chain development will promote different approaches suitable to subsistence and commercial farmers. The landless rural households will be benefiting from the ADS indirectly, through the combination of direct food and nutrition security interventions, the employment opportunities expanded in the rural non-farm sector, and the growth of agriculture-based enterprises.

33. Eventually, over the course of the ADS twenty-year implementation, the process of agricultural transformation will proceed and an increasing number of rural households will find employment either in the rural non-farm sector or in the urban sector; a considerable number of rural household will also continue to migrate outside the country pulled either by higher income opportunity or pushed by the lack of profitable employment and attractive livelihood in the rural

areas. Through either processes, the commercialization of the agriculture sector in Nepal will increase but commercial agricultural in Nepal will remain primarily a smallholder activity (namely farmers with less than 2 ha of land). Subsistence farming will continue to coexist with commercial farming for a long time, but its share of the total farming population will decline. The ADS will accelerate the process of commercialization, while improving both the income of the small commercial farmers and the livelihoods of the subsistence farmers, and generating growth and employment in the non-farm sector to absorb the increasing number of landless/marginally landless.

34. The ADS activities will have impact on three groups of farmers (commercial, subsistence and landless). Commercial farmers are directly affected by most of the ADS measures and in some cases, the impact is direct and very strong, for example, in the case of irrigation, mechanization, value chain development, and export. Subsistence farmers are also directly affected by most ADS measures. The direct effect is very strong in the measures related to gender, social, and geographical inclusion; land (eg. addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land); access to quality and timely inputs (eg vouchers targeted to subsistence farmers, improved resilience); and access to microfinance and agricultural insurance. Landless or near landless will benefit from the ADS measures related to targeted food and nutrition programs; gender and social/geographic inclusion; access to forestry products; and growth of small and medium enterprises.

IMPLEMENTATION OF THE ADS

35. Implementation of the ADS implies knowing what to do, how to do it, and doing it. The "what" of implementation is the content of the ADS, specifically the vision, outcomes, outputs, and activities needed to achieve the targets embedded in the ADS vision. The "how" of implementation is the set of mechanisms needed to ensure that things are done according to plan.

THE WHAT OF THE ADS

36. The ADS includes 4 outcomes, 35 outputs, and 232 activities.

Table 2 lists the outcomes and the outputs. The report contains the details of each activity. The outputs and activities of the ADS will be organized into programs (Core programs, Flagship programs, and Other Programs). Core Programs and Flagship Programs are listed in

Table 2. Other Programs are those currently implemented by MOAD that are not listed among the Core and Flagship Programs. After their completion, they will be evaluated and either become part of future Core and Flagship Programs or discountinued.

Table 2 Outcomes, Outputs, and Programs of the ADS

Outcome	No	Output	Program
1. Improved Governance	1.1	Credibility of policy commitment	CORE
	1.2	Improved coordination among institutions involved in the ADS implementation	CORE
	1.3	Integrated planning	CORE
	1.4	Effective implementation support	CORE
	1.5	Mechanisms established for gender equality and social and geographic inclusion in	CORE

Outcome	No	Output	Program
		the ADS	
	1.6	Timely and effective monitoring and evaluation of the ADS	CORE
	1.7	Mechanisms established for participation of farmers and value chain actors in the planning, implementation, and monitoring of the ADS (e.g. Farmers' Commission)	CORE
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	CORE
	1.9	Improved food and nutrition security of the most disadvantaged groups and rights to food	FLAGSHIP (FANUSEP)
	1.10	Performance-based management systems linked with rewards established	CORE
2. Higher Productivity	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	FLAGSHIP (DESTEP)
	2.2	A decentralized research system responsive to farmers and agroenterprises' needs	FLAGSHIP (DESTEP)
	2.3	A strengthened agricultural education system	FLAGSHIP (DESTEP)
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	CORE
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	CORE
	2.6	Timely access to quality agricultural inputs at affordable price.	CORE
	2.7	Effective implementation of existing seed policies including Seed Vision 2013-2025 through sufficient investment in resources and capacity building, resulting in an improved and decentralized seed system providing timely access to quality seed at affordable price	CORE
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity	CORE
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers	CORE
	2.10	A range of mechanization options accessible to farmers	CORE
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks	CORE
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted	CORE
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement	CORE
3. Profitable Commercialization	3.1	Improved investment climate for agricultural commercialization	CORE
	3.2	Contractual arrangements for commercial agriculture	CORE
	3.3	Tax policy that supports an efficient commercial agriculture sector	CORE
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products	CORE
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agro-enterprises	FLAGSHIP (VADEP)
	3.6	Rural roads network expanded	CORE
	3.7	Agricultural market information and ITC products for market intelligence	CORE
	3.8	Expanded rural electrification and renewable energies	CORE
4. Increased Competitiveness	4.1	Market infrastructure developed	CORE
	4.2	Growth of innovative small and medium agribusiness enterprises	FLAGSHIP (INAGEP)
	4.3	Growth of food and agricultural products exports	CORE
	4.4	Enhanced food safety and quality	CORE

THE HOW OF THE ADS

37. The implementation of the ADS will entail the combination of existing mechanisms and new mechanisms. The traditional way of implementing strategies and plans for the agriculture sector envisages an institutional framework whereby the National Planning Commission (NPC) provides overall policy coordination, the Ministry of Agricultural Development (MOAD) provides leadership in implementing agricultural programs, and related agencies support the implementation. For example, Department of Irrigation (DOI) would be in charge of irrigation development, Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) is in charge of agricultural road, Department of Forestry (DOF) and Department of Soil Conservation and Watershed Management (DSCWM) in charge of protection and conservation of forestland, Department of Agriculture (DOA) and Department of Livestock Services (DLS) is in charge of agricultural and livestock extension and Nepal Agricultural Research Council (NARC) is in charge of agricultural research.

38. The traditional way of implementing programs and plans has its own logic and rationale. However, in the traditional way, coordination has been weak, partly because of the weak capacity of implementation agencies in policy formulation, integrated planning, policy monitoring, procurement, and financial management; and partly due to new dynamics arising during the process of agricultural transformation and the changing global context such as accelerated migration, dominance of global value chains, and new technologies requiring continuous innovation and adaptation.

39. In the traditional way of implementing agricultural programs in Nepal, the key stakeholders of the agriculture sector– farmers, cooperatives, and private agroenterprises–have often been left in the backstage of development, with the front stage taken by government agencies.

40. The traditional mechanisms offer useful lessons and guidance for the future; clearly NPC, MOAD, and other line agencies have an important role to play in the ADS and this role has to be acknowledged and strengthened. However, the traditional mechanisms are also limited in their implementation capacity and their relegation of key stakeholders (farmers, cooperatives, and private sector) in the back stage. More fundamentally, the traditional way of implementing agricultural policies and programs in Nepal has not produced the desired results of accelerated growth and poverty reduction.

NEW MECHANISMS

41. The ADS proposes new mechanisms to improve implementation. The new mechanisms build upon the existing mechanisms and complement them, support them, and strengthen them. Specifically, in addition to the NPC, MOAD and other related agencies, the ADS implementation will rely on the combination of institutions, farmers and value chain actors, prioritized national programs, and key stakeholders. Linkages among the existing and new mechanisms are illustrated in Figure 2.

Institutions

1. National ADS Coordination Committee (NADSCC)
2. National ADS Implementation Committee (NADSIC)
3. ADS Implementation Support Unit (ADSISU)
4. ADS Implementation Support Trust Fund (ATF)

Flagship and Core Programs

1. Food and Nutrition Security Program (FANUSEP)
2. Decentralized Science, Technology, Education Program (DESTEP)
3. Value Chain Development Program (VADEP)
4. Innovation and Agro-entrepreneurship Program (INAGEP)
5. Core Programs

Leading Stakeholders

1. Ministry of Agricultural Development, National Planning Commission and other Government Agencies
2. Farmer Organizations
3. Cooperative Organizations
4. Private Sector Organizations

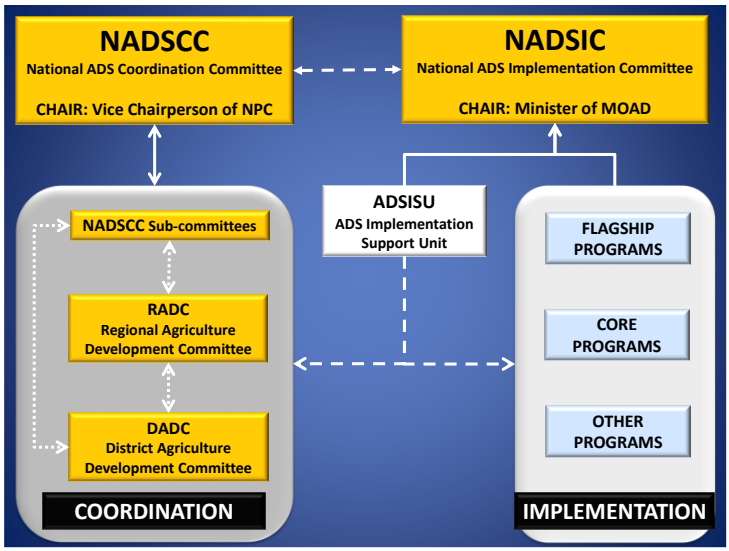


Figure 2: The ADS Implementation and Coordination Mechanisms

Note: **As per the** federal states**, the roles of** RADC **and** DADC **would change**THE NATIONAL ADS IMPLEMENTATION COMMITTEE (NADSIC)

42. A National ADS Implementation Committee (NADSIC) will be established, which will be chaired by Minister for Agricultural Development, with Vice Chair of NPC as co-chair, Member of NPC (Agriculture Sector), Vice Chancellor the Agriculture and Forestry University, Secretaries from the Ministries of Finance, Irrigation, Forestry, Federal Affairs and Local Development, Cooperatives and Poverty Alleviation, Land Reform and Management, Education, Presidents of FNCCI and CNI, representative of National Peasant's Coalition as members, and MoAD Secretary as Member Secretary. Observer status will be made available to the independent professionals, DP representative, NGOs and academia. The ADS implementation committee will be responsible to

ensure the implementation of ADS and should meet bi-monthly. The TOR of the Committee will include the following:

i. Ensure the implementation of ADS by promoting policy, administrative and legislative changes in responsible institutions.
ii. Ensure resource mobilization both from internal (public and private) and external sources.
iii. Provide guidance to the line ministries and the stakeholders to facilitate ADS programs and projects implementation from the grassroots to the national level.
iv. To act as the Project Steering Committee for the TA which supports ADS implementation,
v. Together with NADSCC and the NPC, organize periodic assessment of the ADS and recommend adjustments.
vi. Adjust ADS Programs, and institutional structure as per the upcoming federal structure.

COORDINATION COMMITTEES (NADSCC AND SUBCOMMITTEES, CADIC, RADC, DADC)

43. The National ADS Coordination Committee (NADSCC) is the national coordination committee of line agencies under the chairmanship of Vice Chairman (VC) of NPC. NADSCC will be strengthened through secretariat service provided by the ADS Implementation Support Unit (ADSISU) and will be enhanced with the establishment of the following NADSCC sub committees charged with improving the coordination of ADS relevant issues such as:

a. Coordination between agriculture and irrigation extension (specifically between DOA and DOI)
b. Coordination among public sector, private sector (e.g. Federation of Nepal Chambers of Commerce and Industry (FNCCI), Agro-enterprise Center (AEC), Confederation of Nepalese Industries (CNI), agribusiness associations, associations of small and medium enterprises), cooperative sector (e.g. National Federation of Cooperatives), and farmer organizations (e.g. National Peasants' Coalition)
c. Coordination between government sector and non-governmental organizations/international non-governmental organizations (NGOs/INGOs)
d. Coordination between government and development partners
e. Coordination among Research-Extension-Education organization (NARC - DOA, DLS, DFTQC - Agriculture and Forestry University, Institute of Forestry, Colleges of Agriculture, Center of Vocation Education and Training)
f. Coordination between Agricultural Development and Food Nutrition Security and Food Safety (MOAD and Ministry of Health and Population-MOHP, National Nutrition and Food Security Steering Committee-NNFSSC)

44. Central Agriculture Development Implementation Committee (CADIC) chaired by Secretary of MOAD will periodically convene agencies involved in the implementation of agricultural programmes and coordinate activities. CADIC will be strengthened through capacity building of the ADS Implementation Support Unit (AISU). Similar coordination mechanisms exist at the regional level –Regional Agricultural Development Committee (RADC) coordinated by Regional Director Agriculture – and at the district level-District Agricultural Development Committee (DADC) chaired by District Development Committee (DDC) Chairman. All these mechanisms need to be strengthened and revitalized with support of the ADS Agricultural Support Unit and coordination with the NADSCC.

45. Effective communication among DADCs, RADCs, and CADIC should be assured through periodic briefings from DADCs to the RADCs and CADIC. CADIC will coordinate with NADSCC. Annual ADS Report will be prepared by CADIC and submitted to NPC with the assistance of the ADS Implementation Support Unit.

ADS IMPLEMENTATION SUPPORT UNIT (ADSISU)

46. The implementation of the ADS requires coordination among different agencies and stakeholders; implementation also requires capacity in policy analysis and formulation, monitoring, and legislation and regulatory skills that are currently dispersed. A unit responsible to the MOAD, (ADS Coordination Section under the Policy and International Cooperation Coordination Division) endowed with policy, legal and analytical capacity will greatly contribute to bridging the gap between policy and implementation and enhancing the capacity of the ADS implementation agencies.

47. Functions of the ADSISU include:

i. Provide capacity building in policy analysis and policy monitoring and integrated planning to relevant implementation agencies;
ii. Support formulation and amendment of policies and regulations for implementation of the ADS
iii. Support the development of a system and database for ADS monitoring;
iv. Support formulation and amendment of policies and regulations needed for implementing the ADS;
v. Support formulation of integrated periodic plans (annual and 5-year plans, and revisions /updates of ADS plans);
vi. Support NADSCC, NADSIC, ATF Secretariat and professional service;
vii. Support coordination mechanisms (NADSCC, NADSIC, CADIC, RADC, DADC) in terms of capacity, logistics, and analytical units;
viii. Support monitoring of the ADS implementation and institutionalization, including monitoring of related policies;
ix. Facilitate implementation of national programs such as the ADS Flagship programmes through advisory services to the Programme Managers;
x. Support harmonization of Sector Policies with international commitments and guidelines;
xi. Help to develop and institutionalize a performance-based management system for ADS and institutionalize performance based incentives for ADS implementation institutions;
xii. Collect and analyze data of strategic importance to ADS implementation as needed and in synergy with existing data collection systems;
xiii. Coordinate development partner investments and programs to be in line with implementation of the ADS;
xiv. Evaluate and possibly formulate a sector wide approach for agriculture and, in case such approach is pursued by GoN, support its implementation;
xv. Commission studies to look at costs and benefits of alternative policies (e.g. minimum price schemes for rice and wheat).

ADS IMPLEMENTATION TRUST FUND (ATF)

48. All current modalities of financing the sector will remain the same. The only additional modality will be a multi donor ADS Trust Fund (ATF) to be established with a flexible implementation modality agreeable to both GoN and development partners. However, the implementation of the ATF will be led by the Ministry of Agricultural Development. Resources in the ATF may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of the Flagship programs of ADS, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the periodic (e.g. biannual) ADS implementation and strategic direction review.

ADS PROGRAMS

49. The ADS will be implemented through three different types of programs: the Core Programs, the Flagship Programs, and Other Programs. The Core Programs are implemented mostly through existing agencies already in place at the ministry levels or department levels of agencies. The Flagship Programs on the other hand require different management structure in view of the innovative and multisector nature of their activities. Other Programs are those that are currently implemented but are not part of the currently formulated Flagship or Core Programs. Moreover, the Ministry of Agricultural Development will lead the implementation of Flagship programs too. Over time, the ADS will include only two types of programs, namely the Flagship and the Core Programs. Based on evaluation, the existing Other Programs will be either discontinued after their completion or will be absorbed in a new formulation of Flagship and Core Programs.

FLAGSHIP PROGRAMS

50. The ADS envisages some prioritized national programs around which could be mobilized sufficient consensus, resources, and effective management. These prioritized national programs will be referred to as "ADS Flagship Programs". The flagship programs of the ADS are:

i. Food and Nutrition Security Program (FANUSEP)
ii. Decentralized Science, Technology, and Education Program (DSTEP)
iii. Value Chain Development Program (VADEP)
iv. Innovation and Agro-entrepreneurship Program (INAGEP)

FOOD AND NUTRITION SECURITY PROGRAM (FANUSEP)

51. FANUSEP aims at improving food and nutrition security of the most disadvantaged groups. It will consist of three subprograms: the Nepal Food Security Project (NAFSP), currently been finalized as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security Action Plan (FNSP), currently been finalized with assistance of FAO; and a new national food and nutrition security project to be designed and implemented to complement NAFSP and FNSP. The new national food and nutrition security projects will be designed referring to the evidence-based information systems like NeKSAP, and information sources from DHS, NLSS, and others.

52. The commonality of the subprograms of FANUSEP is to target the poor, the disadvantaged groups and the geographically disadvantaged areas (e.g. Karnali). The program will promote interventions that improve productivity, livelihoods, and nutritional practices of targeted beneficiaries including pregnant and lactating women farmers. The ADS in general and FANUSEP in particular will align with the Multisector Nutrition Plan (MSNP), a five year program already approved by the GoN, and the Food and Nutrition Security Plan of Action (FNSP), which is also approved.

DECENTRALIZED SCIENCE, TECHNOLOGY, AND EDUCATION PROGRAM (DESTEP)

53. DSTEP aims at decentralizing the extension and research system while fostering coordination of research, extension, and education in order to enhance responsiveness of extension, research, and education institutions to farmers' and agroenterprises' needs.

54. The program will be implemented through a Program Manager, deputed by the Ministry of Agricultural Development. The DESTEP Manager will ensure coordination among related ministries and the departments, NARC, DOA, DLS, Department of Food Technology and Quality Control (DFTQC), agricultural education institutions such as Agriculture and Forestry Universities and Colleges and facilitate implementation of the activities related to the outputs of the decentralized extension and research system, and strengthen agricultural education system.

55. The decentralized extension system will include three main measures: (i) establishment of Community Agricultural Extension Service Centers (CAESC) in each Village Development Committee (VDC); (ii) strengthening capacity of existing and planned Agriculture and Livestock Service Centers that will provide backstopping services to the CAESCs; and (iii) promoting a voucher system to empower farmers to access the best available agricultural input and extension service providers.

56. The decentralized research system will require decentralization of NARC, establishment of new national research institutes (e.g. a National Horticultural Research Institute, National Animal Health Research Institute, and National Aquaculture and Fisheries Research Institute), establishment of a National Agricultural Research Fund (NARF) under NARC, and the establishment of research stations in all regions, including the Far Western Region.

57. The integration with the agricultural education system will include support to the Agriculture and Forestry Universities, creation of a Department of Agribusiness and a Department of Technology Dissemination in the Agriculture and Forestry University, capacity building of vocational schools and support to the establishment of regional agricultural colleges.

58. The funds required for implementation of the DSTEP will be pooled into a fund, the DSTEF (Decentralized Science, Technology, and Education Fund) that will be replenished through contribution of GoN and development partners. The DSTEP Manager will be responsible for disbursements of funds from the DSTEF to the related implementation agencies such as NARC, DOA, DLS, Agriculture University, and Agriculture Colleges.

VALUE CHAIN DEVELOPMENT PROGRAM (VADEP)

59. VADEP aims at developing prioritized value chains (initially only 5 such value chains have been proposed-maize, dairy, vegetables, lentils, and tea, and the value-chain coverage would expand to other products from the list of 15 items) through comprehensive and integrated measures along the value chain that results in strengthened value chain linkages, increased public private partnership (PPP) investment and value added with sector impact, and benefits to the poor. Differently from other ongoing or past value chain interventions in Nepal, the VADEP will have the following innovative features: (i) will be looking at and developing all the stages of the value chain, from seeds to final products, from production to processing, from market infrastructure to access to roads and connectivity, from postharvest technology to quality assurance and exports; (ii) will be based on associations of farmers, traders, processors, input providers and other value chain stakeholders in order to strengthen the linkages and ensure effective investment; (iii) will aim at replication and linkages beyond the district and achieve national impact; and (iv) will work not only with one district or department but across districts, departments, and value chain actors.

60. The Manager of VADEP will be deputed by the Ministry of Agricultural Development. S/he will coordinate with the chief executive officers (CEOs) of specific Value Chain Development Alliances (VCDAs) to implement specific value chain sub-programs. The VADEP Manager will facilitate the flow of funds from GON, development partners, and other investors (e.g. through the support of the Investment Board) to the VCDAs and will assure overall monitoring and evaluation of the program.

61. The Value Chain Development Alliances (VCDA) are societies owned by farmers and their associations, entrepreneurs, input providers, logistics operators, warehouse managers, cooperatives, and other value chain actors. The commonality of all these VCDA actors is that they are all engaged commercially on a specific value chain and are interested in promoting its commercial development.

62. Each VCDA will have access to a Value Chain Development Fund (VCDF). The members of the VCDA will nominate a Board according to the law and the Ministry will select the CEO to manage the operations of the program for a specific value chain. The Board of each VCDA will include 6 elected members and 7 non-elected members. The non-elected members will be nominated by GoN and include representatives from MoAD, MoI, MoFALD, MoF, NPC, FNCCI, and Nepal Rastra Bank. The Board will be chaired by one of the members nominated by GoN. The management of each alliance will prepare a business plan and an investment plan, to be approved by the Board of the Alliance. The operations of the VCDA will be audited according to the law of Nepal and according to regulations of the Development Partners supporting the VCDF.

INNOVATION AND AGROENTREPRENEURSHIP PROGRAM (INAGEP)

63. INAGEP aims to foster agricultural innovation and agroentrepreneurship through the combination of tax incentives, agribusiness incubators, and matching grants. The main beneficiaries of this program will be private enterprises including micro, small and medium enterprises, cooperatives, and targeted groups including youth, women, and disadvantaged groups.

64. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises through improved tax incentives, establishment of agribusiness incubators, and matching grants.

65. The funds required for implementation of the INAGEP will be pooled into a fund, the INAGEF (Innovation and Agroentreprenership Fund) that will be replenished through contribution of GON and Development partners. The INAGEP Manager will be responsible for disbursements of funds from the INAGEF to the agribusiness incubators and the matching grant fund managers.

THE LEADING STAKEHOLDERS: FARMERS, COOPERATIVES, AND PRIVATE SECTOR

66. In addition to the government agencies responsible for coordination and implementation of the ADS, the leading stakeholders in the ADS will be farmers, cooperatives, private agroenterprises, and their organizations (e.g. the National Peasants' Coalition, the National Cooperatives' Federation, the Seed Entrepreneurs Association, the Dairy Industry Association). There are similar organizations at the district level, and in the case of farmers and cooperatives at the VDC level. Moreover, there are a number of national and local commodity organizations or trade organizations. Farmers in the ADS include both commercial farmers and subsistence farmers; smallholders and marginal farmers; agroenterprises include micro, small, medium, and large enterprises.

67. The ADS recognizes that its success depends on the participation and the ownership of farmer organizations, cooperative organizations, and private sector organizations. Differently from previous strategies for the agriculture sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

68. The leading ADS stakeholders have the rights to:

- Participate and influence the ADS policy and investment decisions
- Participate in the monitoring of the ADS
- Access to information related to ADS planning, implementation, and monitoring

69. At the same time, the leading ADS stakeholders have the duty to:

- Contribute to the solution of the problems encountered during formulation and implementation of the ADS
- Contribute to accelerate the decision making process regarding the ADS

70. The rights of leading stakeholders in the ADS are institutionalized as follows. Representatives of Farmer Organizations (FO), Cooperative organizations (COO), and Private Sector Agroenterprise Organizations (PSO) will be members of the ADS key decision and coordination bodies that oversee the formulation, planning, implementation, and monitoring of the ADS including:

i. NADSC, and CADIC
ii. NADSCC Subcommittees related to the ADS
iii. DADC and RADC
iv. NARC Board
v. Governing Body of the CAESC
vi. Policy Review Panels organized to review the formulation of new policies under the PICCD at MOAD
vii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
viii. NeKSAP District Food Security Network

COST OF THE ADS

71. The initial evaluation of the ADS program cost over a period of 10 years is presented in Table 3.

Table 3 Total (10-year) Cost of the ADS and Yearly Average

Cost	US million	Rs billion	Rs billion/year	Percent
Total	$5,282	501.8	50.2	100
Govt/Donors	$4,683	444.9	44.5	89
Private/Community	$600	57.0	5.7	11

72. The Flagship Programs will represent about 37% of the total program cost. Among the Core programs, the main costs are irrigation (19%), fertilizer (8%), and forestry (8%). It should be noted that the ADS is promoting a voucher system for inputs (including fertilizer, seeds, and breeds) and extension services. The voucher system will empower farmers to make decisions regarding extension services and inputs. Initially this system will be promoted on a pilot basis. Based on the review of performance of the pilot programme, the system might be expanded and may progressively replace the direct subsidies such as fertilizer and seed subsidies.

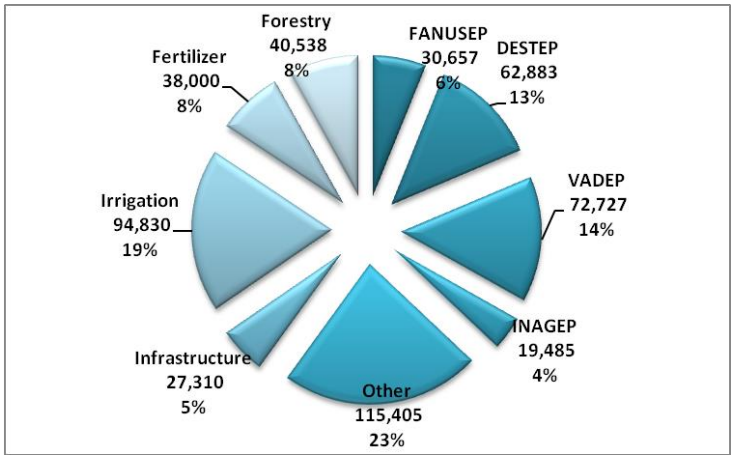


Figure 3: Composition of ADS Costs

ROADMAP OF THE ADS

73. For the ADS to be implemented successfully, some conditions have to be satisfied. These include:

i. Government commitment
ii. Policy and Regulations for ADS Implementation in place
iii. Consensus of key stakeholders
iv. Development partners support

74. These conditions need to be validated as follows:

i. Government commitment
   - Medium term budget commitment of central and local government
   - Tenure of key positions
   - Establishment of NADSCC, NADSIC, ATF, and ADSISU

ii. Policies and Regulations for ADS Implementation
   - Formulation and Approval (see table below)

iii. Consensus of key stakeholders
   - Pledge consensus over the key agreement points
   - ADS Signing Ceremony by major political parties

iv. Development partners support
   - Medium term resource commitment

Table 4: Examples of Policies and Regulations needed for Implementing the ADS

Governance	Productivity	Commercialization	Competitiveness
1. ADS Implementation Support Unit (ADSISU)	1. CAESC	1. Contract farming	1. Innovation Funds
2. Composition of NADSCC and Subcommittees	2. NARC restructuring	2. Value Chain Development Alliances	2. Quality and Safety regulations
3. Composition of CADIC, RADC, DADC	3. Dept Agribusiness Agriculture and Forestry University and Ag Colleges	3. Crop and livestock Insurance regulations	3. Food safety law
4. ADS Information desks	4. Vouchers for extension and input	4. New Financial Products	

Governance	Productivity	Commercialization	Competitiveness
5. Establishment of NADSIC	5. Land Leasing		
6. ADS Implementation Trust Fund (ATF)			
7. Tenure of key positions			
8. Farmers' Commission			

EARLY MILESTONES OF THE ADS

- Before GoN Approval
  - Finalize ADS document
  - Extension awareness campaign about the ADS at the central and local level
  - Pledged consensus of key stakeholders (multiparty ADS signing ceremony)
  - Indicative support by development partners

- During First Year of Implementation
  - Regulations standards and guidelines for NADSCC, NADSISU, ATF and Flagships as appropriate
  - Establish ADS Institutions
  - Formulate Guidelines for ADS Implementation
  - Recruit Program Managers for ADS Flagships
  - Budget allocations to ATF by Donors
  - Establish Farmers' Commission
  - Update relevant data and statistics

MONITORING AND EVALUATION OF THE ADS

75. The ADS needs to be monitored regularly, professionally, and in a participative manner. Monitoring Division and Sections will be strengthened at the Ministry and department levels and will be provided support and capacity building by the ADS Implementation Support Unit. In addition to project and program monitoring, the ADS will require regular policy monitoring. Moreover, NeKSAP will be one of the relevant systems to monitor the output, outcome and impact of ADS to receive subsequent feedback. Monitoring will need to go beyond inputs and output monitoring and include outcomes and impact monitoring according to the targets and design monitoring framework of the ADS programs. Monitoring reports should be publicly available both in Nepali and English and discussed regularly at national and local events. Monitoring should also identify good performance and link performance to reward.

76. **ADS is a living strategy**. Through regular monitoring and periodic review and evaluation, the details of the ADS will continuously evolve and improve. An external 5-year review of the ADS will be commissioned and widely discussed by government and civil society. However, the ADS will be reviewed and revised in line with the Constitution. This Constitution by creating the Federal, Provincial and Local States has classified the foods, agriculture and natural resources development works as falling either separately under a specific state jurisdiction, or as in the Concurrent list; and also has set out a number of rights and directives about food, health and social protection. Thus, a further refinement of the ADS is envisioned to address the above policy, legal, institutional and social issues as well as the craft of agricultural development and progress.

1 INTRODUCTION

77. The *Final Report of the Agriculture Development Strategy 2015-35* (henceforthADS) is prepared by the Ministry of Agricultural Development in consultation with National Peasants' Coalition. This ADS Final Report was prepared under the Technical Assistance (TA) 7762 NEP funded by Government of Nepal (GON) with support from Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), European Union (EU), Food and Agriculture Organization (FAO), Swiss Agency for Development and Cooperation (SDC), Japan International Cooperation Agency (JICA), Denmark Agency for International Development (DANIDA), World Food Program (WFP), United States Agency for International Development (USAID), Department for International Development (DFID), the World Bank, the Australian Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

78. After finalizing the Agriculture Development Strategy (ADS) from the Ministry's side, the Agriculture and Water Resource Committee of Legislature-Parliament (AWRC-LP) and National Planning Commission (NPC) showed ownership and interest on the long term strategy. AWRC-LP has provided the suggestions and feed-back (attached as Appendix 6) to the Ministry of Agricultural Development (MoAD) after holding series of discussions and consultations with the concerned stakeholders including NPC, Chief Secretary and different line ministries (Agricultural Development, Irrigation, Energy, Supply, Industry, Cooperative and Poverty Alleviation, Physical Infrastructure and Transport, Urban Development, Finance, Land Reform and Management, and Education) to ensure widespread commitment for effective implementation of the Strategy. Similarly, AWRC-LP held meetings with development partners to ensure commitment for resources and implementation support. Further, it sought suggestions from experts and representative of farmers, value chain actors to add different perspectives in the strategy. The National Planning Commission also provided the suggestions (attached as Appendix 7) on Agriculture Development Strategy (ADS). All these suggestions have been taken into account and will be the part of the ADS. Appreciating the comprehensiveness of the suggestions and dynamic nature of the strategy, the suggestions are broadly categorized as policy, programmatic and institutional. The institutional suggestions have all been incorporated in this Report. Policy level suggestions made by the committee have been largely addressed. Further, concerned ministries and other implementing agencies will address the policy related suggestions while formulating specific policies and acts. The program level suggestions and suggestions from the NPC will be addressed in periodic and annual work plan and budget of the government ministries and other implementing agencies. Based on the suggestions of AWRC-LP, Ministry of Agricultural Development will report quarterly to the Committee about ADS implementation status, developing different indicators in consultation with NPC. The Final TA Report is the *seventh* main deliverable of the ADS Preparation Team, after the *Inception Report*[1], the *Assessment Report*[2], the *Vision Report*[3], the *Policy Options Report*[4], the *Action Plan and Roadmap*

[1]ADB 7762-NEP (2011) Inception Report. Technical Assistance for the Preparation of the Agriculture Development Strategy, Asian Development Bank, September 2011

[2]ADB 7762-NEP (2012) Assessment Report. Technical Assistance for the Preparation of the Agriculture Development Strategy, Asian Development Bank, April 2012

[3]ADB 7762-NEP (2012) Vision Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, December 2012

[4]ADB 7762-NEP (2013) Policy Options Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, February 2013

Report[5]*,* and the Draft Final Report[6]. The *Assessment Report* presented the current situation of the Agriculture Sector, identified issues and constraints, and discussed the policy context. The *Vision Report* presented the stakeholders' view of the Agriculture Sector over the next 20 years, taking into consideration likely trends of factors exogenous to the agriculture sector and lessons from experience of agricultural transformation in other countries. The *Policy Options Report* presented the recommendations of the TA Team to accelerate the process of agricultural transformation of Nepal from the current situation of low agricultural development to the desired situation envisaged in the ADS vision[7]. The *Action Plan and Roadmap Report* provided details about the activities and institutional framework required to achieve the outputs leading to the desired outcomes of the ADS.

1.1 Objective of the ADS Final Report

79. The objective of this Report is to formulate a 20-year agriculture strategic plan including a 10-year Action Plan and Roadmap and a rationale based on the assessment of the current and past performance of the agriculture sector.

1.2 Methodology

80. This *Final Report* builds upon all the previous outputs and reports of the TA. In addition to the six reports already submitted, this Final Report benefits from numerous consultations undertaken with stakeholders at the central and local level.

81. The formulation of the Final Report followed a participatory process of consultation. From the beginning of the preparation of the ADS, the TA Team has undertaken the following activities:

a. Policy Roundtables (with NPC, Farmer Organizations, Private Sector, NGOs, Former Finance Ministers)
b. Policy Retreat
c. National Workshops (4)
d. Regional Workshops (13)
e. Thematic Group Meetings (30)
f. National Conference (1)
g. Public Dialogues with media, farmer organizations, and civil society (9)
h. Key stakeholder interviews (about 4,000)
i. Project Steering Committee Meetings (7)
j. Focus Group Discussions at the village level (total 20 of which 5 in irrigation, 3 social, 3 trade, 3 women, 3 research and extension, and 3 academia)
k. Experts assessment
l. Submission to Ministry of Agricultural Development
m. Formation of ADS Advisory Committee and Technical Committee in the Ministry
n. Wide dissemination of the report through website and national papers
o. Peer review by the experts
p. Consensus with National Peasant's Coalition
q. Final Regional consultations (2) and National workshop (1)

[5]ADB 7762-NEP (2013) Action Plan and Roadmap Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, April 2013
[6]ADB 7762-NEP (2013) Draft Final Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, June 2013
[7] The Vision Statement presented in the Vision Report is: *A self-reliant, sustainable, competitive, and inclusive agriculture sector that drives economic growth, and contributes to improved livelihoods and food and nutrition security leading to food sovereignty*

r. Suggestions from AWRC-LP and NPC incorporated
s. Submission to the Cabinet for approval
t. Approval by the Economic and Infrastructure Committee of the Cabinet as mandated by the cabinet incorporating the suggestions that came during the meeting.

1.3 Organization of the Report

82. The report is organized into 10 chapters and 7 appendices as follows:

Chapter 1 Introduction
Chapter 2 Assessment of the Agriculture Sector
Chapter 3 Vision of the ADS
Chapter 4 Strategic Framework
Chapter 5 Activities of the ADS Action Plan
Chapter 6 Costs of the ADS
Chapter 7 Implementation Arrangements
Chapter 8 Food and Nutrition Security
Chapter 9 Monitoring and Evaluation
Chapter 10 Roadmap
Appendix 1 References
Appendix 2 Challenges of the ADS
Appendix 3 Methodology for Targets and Indicators
Appendix 4 Cost of Activities in the ADS Action Plan
Appendix 5 List of Participants and Contributors in ADS Preparation
Appendix 6 Suggestion report from Agriculture and Water Resource Committee of Legislature Parliament (AWRC-LP)
Appendix7 Suggestion Report from National Planning Commission
Note: Appendix 2-7 are part of ADS Part-2

2 ASSESSMENT OF THE AGRICULTURE SECTOR[8]

83. For the purpose of the ADS, the agriculture sector goes beyond the domain of only one central agency such as the Ministry of Agricultural Development (MoAD).The ADS refers to the broader agriculture sector that:

a) Includes crops, livestock, forestry, and fisheries
b) Includes irrigation, agricultural and rural infrastructure
c) Includes production, trade, processing, and marketing
d) Spans across different ministries and agencies
e) Includes not only government agencies but farmers and their organizations, private sector enterprises and their organizations, and NGOs.

2.1 Current Status and Progress in the Agriculture Sector over the APP Period

84. Since the Agriculture Perspective Plan (APP) started in year 1995/96, the agriculture sector in Nepal has made progress in several indicators of well-being and development. For example, income per capita and productivity of agricultural labor have increased, poverty has reduced, and malnutrition has declined. The road network has considerably expanded and irrigation coverage has increased as well. In almost all agriculture subsectors (crops, livestock, fishery, and forestry) there

[8] This Chapter is based on the ADS Assessment Report.

has been progress in terms of production or/and productivity. However, the sector is in a low development stage as highlighted by a number of indicators including labor productivity, productivity gaps, trade and competitiveness, poverty and malnutrition, and infrastructure (Table 5 and Figure 4). Some subsectors show dynamism, but overall, these positive signs are not yet sufficient to lift a still large number of people engaged in agriculture out of poverty, reduce malnutrition and assure food security of the nation. There are, however, positive signals that show not only the potential for growth but also opportunities that the ADS should build upon. These positive signals help us to have a more balanced understanding of the complexity of the agriculture sector in Nepal.

Table 5: Key Indicators Related to Agriculture Sector

Indicator	1995/96	2010/2011	2015/16
Agricultural GDP	$3.4 billion	$5.2 billion	$ 8.4 billion
Productivity of Agricultural Labor ($/person)	$466/person	$794/person	$ 835/person
Agricultural Land per Household (ha/hh)	1.1	0.7	0.6
Percentage of holdings operating less than 0.5 ha	40.1%	51.6%	51.1%
Productivity of Agricultural Land ($/ha)	$1,118/ha	$1,804/ha	$ 3,278/ha
Agricultural Land Use (cereal as percentage of cropped area)	80%	80%	80%
Seed turnover	8%	8%	13.2% (a)
Employment in Agriculture	66%	60%	54% (b)
Agricultural Exports	$32million	$248 million	$255 million ($255 million)(c)
Agricultural Imports	$157 million	$621 million	$1,378 million ($1,279 million)(c)
Poverty (2010/11)	42%	25%	21.6%
Percentage of households reporting inadequacy of food consumption	50.9%	15.7%	15.1% (d)
Stunting of Children (less than 5 years)	60%	42%	37%
Irrigation cover (% of cultivated area)	39.6%	54%	54.2%
Infrastructure (Rural Road Network km and Strategic Road Network km)	SRN = km 10,000	RRN = 40,000 km SRN = 10,835 km	RRN = 60,000 km SRN = 15,000 km
ICT reach	Less than 10% connected	46% connected	79% connected (e)

Sources: Calculations by the authors based on data from CBS (2011), NSCA (1981/82), NSCA (2001/02), NSCA (2011/2012), MICS (2014), Economic Survey (2011), Economic Survey (2016), NLSS I (1995/96), NLSS II (2003/04), NLSSIII(2010/11), MoPIT (2016), DOI (2016), Approach Paper 14th Plan (2016), NeKSAP Food Security Bulletin Volume 40 to 47, TEPC, MOAD, and DOLIDAR, DOR Statistics of Strategic Road Network 2013/14

(a) Seed turnover calculated solely from rice, wheat, maize, lentil and mustard (SQCC, 2014 database)

(b) Linear projection from Population Census (1971- 2011).

(c) Figures in the parenthesis are three years average ending in 2014/15

(d)Average incidence of food inadequacy in the country during 2014 and 2015 (NeKSAP bulletins).

(e) Average of telephone density and internet penetration.

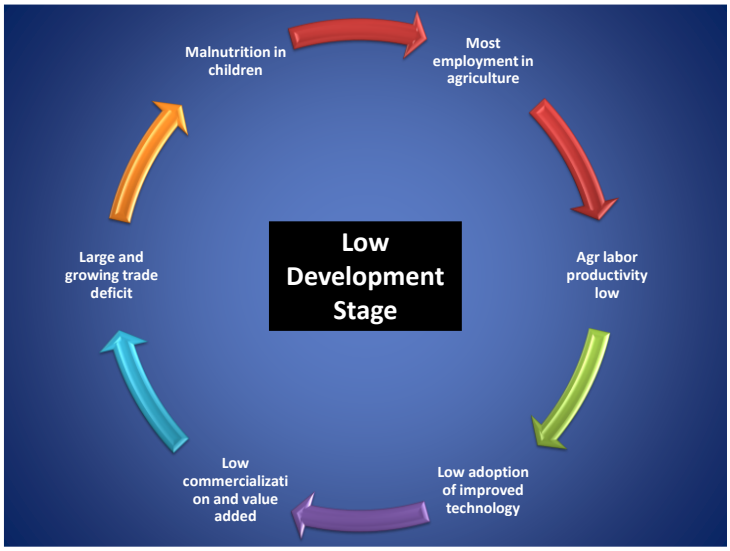


Figure 4: Low Development Stage of Nepal's Agriculture Sector

2.2 Agriculture Sector Growth

85. Growth of agricultural GDP since the beginning of the APP (1995/96) has been slow (about 3.2%), highly variable from year to year, and with a slight downward trend due to weaker growth in 2014/15 and 2015/16 (see Figure 5). This situation needs to be improved over the course of the ADS: growth has to accelerate, become more stable and remain positive. With a growth of population of around 1.8 percent during 1991-2011, the increase in agricultural GDP per capita has been too slow to create strong dynamics leading to sustained poverty reduction and structural transformation from subsistence to commercialization.

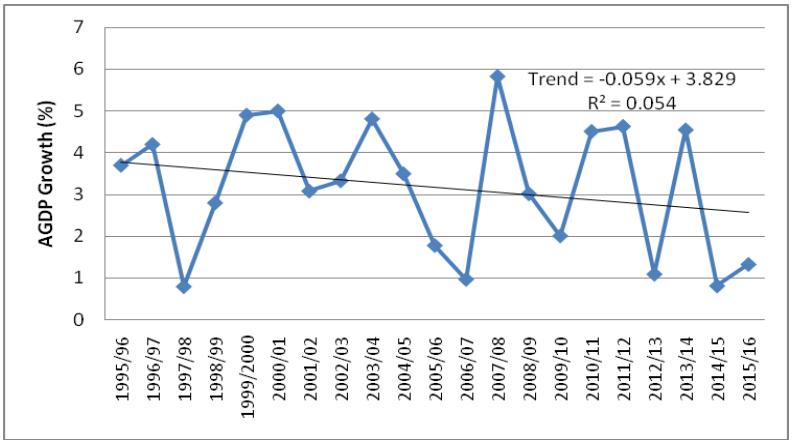


Figure 5: Growth of Agricultural GDP
Source: MOF National Accounts Estimate 2016 (at constant prices)

86. Most of the immediate neighbors of Nepal had considerably faster GDP growth than Nepal (except Pakistan) over the period 1995 to 2014 (see Table 6). The difference in average growth of agricultural GDP however is less marked: Nepal's growth of agriculture was slower than most neighbors (same as India). More worrying however seems to be the lack of integration between agriculture and non-agriculture sector in Nepal that is ultimately responsible for the low performance of overall GDP. While in neighboring countries there is a growing and relatively vibrant agribusiness sector, this is still at its early stage in Nepal. Given the limited arable land per capita, sustainable growth in agricultural based activities will require a major effort in increasing value added through both on-farm and off-farm activities.

Table 6: Performance Indicator of Nepal and Neighboring Countries

Country	Average GDP% over 1995-2014	Average Agricultural GDP% over 1995-2014	GDP/cap ($) in 2014	GDP/cap ($) in PPP in 2014	Arable Land/capita (ha) In 2013	Cereal yield (kg per ha) In 2014	Ag GDP/arable land ($/ha) in 20014
Bangladesh	5.5	3.9	1,087	3,330	0.049	4,406	3,457
China	9.6	3.9	7,590	13,170	0.078	5,886	8,982
India	7.0	3.2	1,582	5,630	0.123	2,981	2,143
Pakistan	3.9	3.4 -	1,317	5,090	0.168	2,747	1,909
Nepal	4.2	3.22	702	2,410	0.076	2,748	2,817

Source: World Development Indicators at http://data.worldbank.org/data-catalog/world- (accessed on: 30 June 2016)

2.3 Labor Productivity

87. Most agriculture in Nepal is at a low development stage. Agriculture absorbs the majority of the labor force (58 % self-employed in agriculture, 3% earning wages from agriculture[9]), but this labor force is characterized by low productivity compared to the rest of the economy. The estimate of labor productivity in agriculture in Nepal ($ 835/unit of agricultural labor) is about one fourth of

[9] CBS Annual Household Survey 2013/14

the productivity in the rest of the economy (Table 7). The weak performance of agriculture has created strong incentives for a large part of the most productive labor force (the ones in 20 to 40 age group) to seek employment abroad. The departure of migrant labour has reached the number of almost 513,000 in 2014/15. This group is the source of a large volume of remittances, officially estimated over $ 6.1 billion in 2014/15, but these are not usually invested in rural areas.

Table 7 Labor and Land Productivity in Nepal in Agriculture and Other Sectors.

Agricultural Labor Productivity ($/agricultural labor)	Non-Agriculture Labor Productivity ($/non-agricultural labor)	Agricultural Land Productivity ($/ha)
835	3,670	3,278

Source: Calculation based on data from MOF Economic Survey 2016, & CBS NSCA 2011/12

88. Agricultural land per capita has also decreased as the combined effect of several factors including inheritances, loss of agricultural land to urbanization, and degradation of land. Smaller size and more fragmented farms make it more difficult to realize economies of scale and also to provide sufficient livelihood for smallholder farm families. Even though GDP per ha of cultivated land is about $ 3,280, the average farm size is only about 0.6 per household on average and more than 50% of households have farm size less than 0.5 ha (Table 8). For those households with a farm size less than 0.5 ha, the average farm size is 0.24 ha and therefore often insufficient to generate income above the poverty level.

Table 8: Agricultural Land Indicators

Selected Variables	**1995/96**	**2003/04**	**2010/11**	**2011/12**	**2015/16(a)**
Average size of agriculture land (in hectares)	1.1	0.8	0.7	0.66	0.62
Holdings operating less than 0.5 hectare (% of total holdings)	40.1	44.8	51.6	53.5	51.1

Note: (a) Linear equation estimate based on CBS NSCA 1981-2011
Source: NLSS-III 2011, and CBS NSCA 2011/12, Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics

89. Low labor productivity is the major feature of low development, more so than low land productivity. In fact, aggregate land productivity does not compare too badly with several neighbors of Nepal (**Table 9**). For example, Nepal's overall land productivity, as measured by agricultural GDP per ha of arable land was $674 higher than in India. Arable land per capita in Nepal however is considerably lower than in India (about one-half). Nepal has about the same arable land per capita as China, but much lower cereal yield most likely due to Nepal's much lower rates of inputs, irrigation and mechanization.

Table 9 Productivity: Country Comparisons

Country	**Arable Land/capita (ha) in 2014**	**Cereal yield (kg per ha) in 2014**	**Ag GDP per ha of arable land in 2014 ($/ha)**
Bangladesh	0.049	4,406	3,457
China	0.078	5,886	8,982
India	0.123	2,981	2,143
Pakistan	0.168	2,747	1,909
Nepal	0.076	2,748	2,817

Source: World Bank 2014 Indicators Database, accessed July 2016 .

2.4 Productivity Gaps and Limited Commercial Production

90. Several factors are responsible for low productivity including low adoption of improved technology. In Nepal, **adoption of improved agricultural technology** is still low and the productivity gap between current and potential production is significant. Low productivity is related to a high level of farming for subsistence (i.e. not for commercial sales), access and adoption of suitable technology (both on farm and post-harvest), availability of inputs (planting material, breeds, fertilizer, feed, plant and animal health protection, irrigation, electricity, and finance), and limited investment in the sector.

91. Nepal has an estimated 25.1 % of commercialized agricultural entities and 74.9% are **subsistence farming** entities. Staple commodities such as rice, wheat, potato and vegetables have higher commercialization rates (30-50%) than maize and fruits (15-25%). Commercialization rates are high for milk (60%) buffalo meat (80%) and goat meat (85%) reflecting the high value of these products (MOAC and JICA 2010). The low proportion of commercial agriculture in Nepal is highlighted by low use of mineral/chemical fertilizers, irrigation and mechanization, and limited production of rural surplus compared to the rest of the economy. Thus stimulating the process of commercial transformation has been included in past and current policy.

92. **Productivity gaps** for a number of selected products are indicated in Table 10. The table shows that potential for improvement is huge in several subsectors of agriculture.

93. Most **cultivated land** in Nepal (80% of the total) is used to grow cereals crops. Yet considerable potential for other types of agricultural land use are possible including horticultural products, forages, agroforestry, livestock and fishery production.

Table 10: Productivity Gaps for Selected Agricultural Commodities

Product	Units	2013/14	2014/15	2015/16	Average for three years		Potential Production
Fish	t/ha/year	3.9	4.4	4.6	4.3		10
Timber	m^3/year	0.3	0.3	0.3	0.3		13.4
Paddy	t/ha/year	3.4	3.4	3.2	3.3		10-12
Vegetables	Mt/ha/year	14.7	14.8	13.4	14.3		17
Buffalo-Milk	Liters/Lactation	867.7	867.7	868.5	868.0		2000

Sources: For fish, MOAD Year Books 2013, 2014 & 2015 , [10]DOFD, 2010; for timber, [11]MPFS, MFSC,1988, DFRS, 1999; for paddy, [12]MOAC 2010, MOAD Year Books 2013, 2014 & 2015 & Dir. Crop Dev. DOA; for vegetables, MOAC 2010, MOAD Year Books 2013, 2014 & 2015 & Dir. Veg. Dev. Dir.DOA; for buffalo-milk, MOAD Year Books 2013, 2014 & 2015 , [13]DLS 2010.

94. One set of constraints to the realization of such potential is the availability of inputs. For example feed ingredient supply is the major input to poultry and 60% is imported at relatively high

[10]DOFD, 2010.Annual progress report, MOAC, DOA, Directorate of Fisheries Development, Balaju, 90pp.
[11]MPFS, 1988.Master Plan for Forestry Sector, Main Report, Ministry of Forest and Soil Conserbation, Nepal.
[12]MOAC 2010.Statistical Information on Nepalese Agriculture.
[13]DLS, 2010. Annual Technical Report, Animal Production Directorate.

cost. Production of livestock is highly vulnerable to price spikes and supply disruptions in the feed supply chain (DLS 2010). Inbreeding in goats, sheep, pigs, and fish and lower productivity of local cattle and buffalo breeds (DLS 2010, Mahpatra and Rai 2007) calls for new breeding programs. Similarly low seed replacement rate in cereals, limited availability of quality and affordable seeds, and insufficient fertilizer availability limit both the cereal and horticultural productivity improvement. In the case of timber, forest technologies are not site-specific, they are too general and inadequate (See Ebregt et al 2007 and MOSFSC, 2008[14]). Driving factors for the bridging of the gaps include reliable and stable access to information (e.g. demonstrations and extension advice), markets (e.g. competitive providers supplying quality inputs at affordable prices), credit to overcome cash constraints, and insurance mechanisms to reduce risk.

95. The use of chemical NPK fertilizer (nitrogen, phosphorous, and potassium) in Nepal in the year 2011/12 was 422,547 mt of which only about 25% is imported and officially declared to customs[15]. In year 2015/16, the import of NPK fertilizer was 331,746 mt. This amount is sold on a subsidized rate by the State only through agricultural cooperatives. However, price does not substantially affect farmers' demand. Poor quality and poor knowledge of good fertilizer practices are a considerable constraint to productivity. Soil testing and use of locally available lime in much of the arable land could increase the yield substantially.

96. Seed replacement rate (SRR) has remained very low[16]. Against the desirable seed replacement rate for crops of 25% to 30%, average SRR is 13.2% for wheat followed by 14.5% in rice, 12.5% in maize and 4.5% in pulses in year 2014/15. Of the total requirements of the cereal crop seeds, contribution of the formal sector is less than 15% and quality is a constraint to productivity.

2.5 Agricultural Trade Deficit

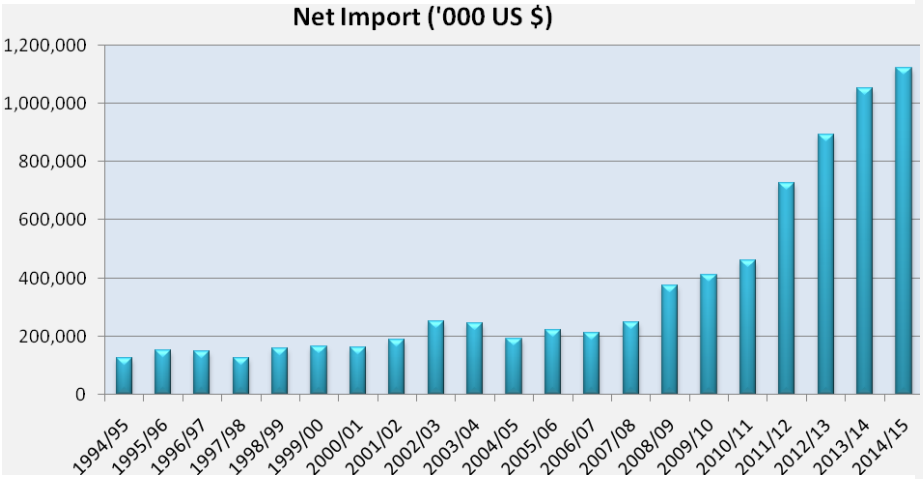
97. In spite of agriculture playing a strong role in livelihoods and the economy, Nepal's agricultural trade is in deficit. The growth of imports has outpaced exports and the agricultural trade deficit has increased over the years from $124 million to $ 1,123 million during 1994/95-2014/15(see Figure 6). Nepal imports primary and industrial raw materials (due to declining domestic raw material production), and processed agriculture products (due to limited investment and competitiveness in high-quality, high-value agro-processing)[17]. The range of exports is concentrated in a narrow set of manufactured and agricultural products, such as carpets, readymade garments, pashmina, handicrafts, pulses, jute goods and vegetable ghee. Export market concentration has increased and most of the exports are destined to few markets such as India, United States of America and Europe.

[14]MOFSC, 2008. The Future of Nepal's Forests Outlook for 2020, Asia Forestry Outlook Study, Country Report, Ministry of Forest and Soil Conservation, Kathmandu, Nepal, Food and Agriculture Organisation of the United Nations, Regional Office for Asia and Pacific, Bangkok

[15] R. Hoyum, Chemonics International 2012. Nepal Fertilizer Demand and Plant Nutrient Assessment, USAID NEAT Activity

[16] Birendra Basnyat (2010). "Improving seed security through the expansion of seed multiplication farms in the public, private and cooperative sectors in Nepal". Economic Policy Network II, MOF/ADB, Kathmandu December 2010

[17]TEPC, 2011. Nepal Foreign Trade Statistics 2009/10; and MOF, 2011. Economic Survey 2010/11.



Source: Calculations based on data from TEPC, Nepal Foreign Trade Statistics 1994/95 to 2014/15 .
Figure 6: Net Import of Food and Agricultural Products

98. The large and growing deficit in food and agricultural trade is symptomatic of **low competitiveness** of agriculture in Nepal. Low competitiveness is the outcome of the difficulty of doing business, poor infrastructure, governance, access to credit, and regulations (see Table 11). Most of the competitiveness indicators are ranked very low in international benchmarking.

Table 11 Competitiveness indicators for Nepal

Indicator	Rank of Nepal
Difficulty of doing business across borders	99 of 189 countries
Infrastructure index	126 of 144 countries
Ease of access to loan index	116 of 144 countries
Corruption perception index	128 of 144 countries
Governance effectiveness index	-0.83 (range -2.5 to 2.5)
Regulatory quality index	-0.85 (range -2.5 to 2.5)

Source: World Economic Forum 2016, World Bank 2016[18]

99. Nepal's agricultural import and export trade comprises about 17.5% of total trade, which includes items such as petroleum, construction materials, vehicles and equipment, consumer goods and others. Agricultural trade is dominated by export of lentils, tea, cardamom, fruit, ginger, and medicinal and aromatic plant products (MAPs), with import of fruit, cereals, vegetables, beans (mostly peas), dairy products, meat animal, and raw materials for processing (oilseeds) and manufacturing (fibers for carpets, garments and textiles). There is good potential for import replacement in vegetables, fruit, beverages, dairy and meat. Export value of the top three high value crops namely cardamom, fruits, and tea is only one-quarter of the value of cereal and dairy imports (Table 12).

100. Nepal has comparative advantages in export markets in resource and labor-intensive low-technology agriculture products such as dried vegetables, coffee, tea, vegetable and roots, ginger,

[18]Kaufmann, D., Kraay, A. and Mastruzzi, M (2009). "Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996-2008". *World Bank Policy Research Working Paper No. 4978.* World Bank, 2009

and cardamom[19]. However for vegetable fat, animal fodder, sugar and confectionery, and molasses, the growth rate is negative, and there is high risk of eroding comparative advantage in future. Looking at the global market structure, Nepal is competing with low/medium level income countries such as Bangladesh, India, Pakistan, China, Vietnam and Thailand.

101. There is considerable potential to increase value adding in Nepal, including: (i) improving quality, safety and labeling up to Codex Alimentarius standard; (ii) certification to standards for safety, quality, fair trade and organic branding; and (iii) processing and product development. For example, the vast majority of spices, pashmina, hides and skins, and MAPs are exported in raw form and most value adding is done in India and China.

102. The Industrial Policy 2010 has prioritized agriculture and agro-forestry industries for investment, and provides additional incentives and facilities to these industries. Foreign investment in agriculture sector (including processing and retailing) is less than 1% of total foreign investment[20].

Table 12: Import and Export of high value crops, cereals, MAPs and dairy (average of 2012/13 to 2014/15)

	Exports (Rs. Million)	Imports (Rs. Million)	Surplus/Deficit (Rs. Million)
Lentils	1,994	1,267	727
Tea	2,027	69	1,957
Cardamom	3,987	619	3,368
Fruit	2,348	9,700	(7,352)
Ginger	749	340	409
Vegetables	166	3,301	(3,135)
Coffee	66	41	25
Beans	4	4,192	(4,189)
Sub-total High Value Crops	11,340	19,530	(8,190)
Cereals	133	30,190	(30,057)
MAPs	1,501	455	1,046
Dairy products	184	1,660	(1,475)

Note: Figures in parentheses are trade deficits. Ref Vol 2, Table 56 for yearly data.
Source: TEPC database and MOAD Year Books (2012/13, 2013/14 and 2014/15)

103. Most imports are from India and India is also the main destination of agricultural exports from Nepal. Nepal has signed trade agreements including the Nepal-India Trade Treaty, MOU on Nepal-China FTA 2016m South Asia Free Trade Agreement (SAFTA), Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the World Trade Organization (WTO). The Trade Treaty with India provides reciprocal duty free without any quantitative restrictions market access for 16 agriculture and primary products, including paddy, wheat, maize, rice, pulses and flour. Nepal's WTO bound tariff on agriculture products is 41.4% on average, but competitiveness is still low. Nepal's overvalued exchange rate reduces the price competitiveness of Nepal's agricultural products in export and domestic markets. The Nepal Trade Integration Strategy (NTIS 2010) noted agricultural trade competitiveness was reduced by the lack of adoption of Good Agricultural Practices (GAPs), Integrated Pest Management (IPM), quality management systems, and third party certification. The government has validated the NTIS 2015, which charts out actions and measures of intervention in cross-cutting areas, such as trade capacity building including trade negotiation, trade and transport facilitation, standards and technical regulations, sanitary and phyto-sanitary measures and intellectual property rights. It also identifies priority export potential sectors

[19]ITC, 2011. Online trade statistics.
[20]Department of Industry, Industrial Statistics 2010/11.

including agro-foods (cardamom; ginger; tea; and medicinal plants), crafts and manufacturing (all fabrics; textiles; yarn and rope; leather; footwear; pashmina; and carpets), services (semi-skilled human resources; information technology and business process outsourcing) and tourism.

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2.6 Poverty

104. **Poverty** is still widespread (21.6% of the population). Most of the poor are in rural areas and poverty is closely associated to a stagnant agricultural growth and rural economy. The rural population remains large and increasing despite urbanization, from about 18 million (89% of total) in 1996 to 22 million (83 %) in 2011 (Table 13), and is projected to be 23 million (80%) in 2016. Agriculture employed about 6.4 million persons in 2011, 64% of the workforce[21]; and it is projected to be 9.9 million (62%) by 2016 . Gains in reducing poverty cannot be attributed solely to development of the agriculture sector, as there have been significant other influences including increased urban employment, remittances from migrant labourers abroad, and increasing GDP contributions from sectors other than agriculture including tourism and services. However, the strategy of programs and projects such as the Poverty Alleviation Fund, and IFAD Western Uplands Poverty Alleviation Project (2003-2014) in general have been consistent with the agricultural policy and APP framework. Recently, agriculture projects of the Asian Development Bank, women farmers' participation, increased from 40% to 50%. Similarly, disadvantaged groups comprised over 50% of total participating farmers[22].

105. The Government's Millennium Development Goals (MDGs) Progress Report 2010 and MDG Progress Report 2013 [23] stated that the poverty rate has decreased, the population suffering chronic food insecurity reduced, and unemployment rates reduced, and there is a positive trend towards gender equality as indicated by a balanced enrolment of girls and boys in primary schools. The Report notes there has been increased allocation of public resources in favor of marginalized groups in remote areas, and greater attention has been given to environmental conservation and adaptation to climate change. The policy environment for achieving most of the MDG targets seems favorable with the Constitution of Nepal 2072 (2015 AD) and its subsequent laws emphasizing inclusive, participatory and decentralized governance. As a guide for the ADS, the Report observes that the Government required priority attention towards the following in meeting the MDG specified targets by 2015:

- Move people up from their below poverty line status;
- Create better environment for private sector investments;
- Develop and enforce supportive policies;
- Address food security and climate change issues;
- Maintain gender balance while providing access to the development opportunities;
- Ensure support entitlements for the benefit of marginalized groups.
- Adopt forward-looking macroeconomic policies that promote sustainable development and lead to sustained, employment-centric, inclusive and equitable, broad-based economic growth;

[21]Of 26.49 million population, total labour force/ economically active population is 9.93 million, agriculture employment 6.36 million (CBS Census of Population and Housing 2011).

[22]ADB (2009) "Technical Completion Report for the Crop Diversification Project L1778", and ADB (2009)."Technical Completion Report for the Community Livestock Development Project L2071".ADB Manila 2009.

[23]NPC (2010)."MDG Progress Report".NPC 2010; NPC (2012) "MDG Acceleration Framework; NPC (2013) "MDG Progress Report"; and NPC (2015) "Sustainable Development Goals 2016-30: National (Preliminary) Report" . Kathmandu

Table 13: Population and Poverty

Census Year	Total Population	Rural Population	Population below Poverty Line
1981	15,023,000	14,062,000	40%
1991	18,491,000	16,790,000	42%
2001	23,151,000	19,933,000	31%
2011	26,494,000	21,970,000	25%
2012/13	27,257,347	22,376,703	34.8%
2013/14	27,646,053	22,560,749	23.1%
2014/15	28,037,904	22,728,974	23.5%
2015/16	28,431,494	22,878,782	21.6%

Source: EIC Survey 1977; National Living Standards Survey 1995, 2005, 2010; Annual Household Survey 2012/13, 13/14, Household Budget Survey 2014/15, Central Bureau of Statistics National Population and Household Census 2011, and (Population Projection 2011-2031, and NPC Approach Paper 14th Plan

The Government's Sustainable Development Goals 2016-2030 National (Preliminary) Report (2015) concluded that most of MDG targets have been achieved in advance and others have been met within the 2015 deadline, and fixed national targets for the SDGs indicators. The National SDG Report underscores the strong need to protect agriculture from external shocks due to the regional and international high and uneven regime of subsidy to agriculture, Nepal's low agricultural productivity, low subsidy, and the lack of encouragement from negotiations on trade in agricultural goods to the Nepalese production and the patenting of technologies and seeds. The SDGs' seven goals and their target indicators, which are quantified, have a bearing on ADS (refer box below). The indicators whose targets are still being formulated include: maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species; implement the IWRMP at all levels; protect and restore water-related ecosystems; Implement programmes on sustainable consumption and production; integrate the climate change measures into national policies, strategies and planning, and so forth. The ADS needs to correspond with these National SDGs targets and programmes once it is final.

Box: Nepal SDG's selected target statements having quantified indicators and bearing on agriculture

SDG1: End poverty in all its forms everywhere:

1. T1.4: all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance;
2. T1.5: build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture:

3. T2.1: end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
4. T2.2: end all forms of malnutrition including the internationally agreed targets on stunting and wasting in children under 5 years of age, and addressing the nutritional needs of adolescent girls, pregnant and lactating women and older persons
5. T2.3: double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
6. T2.4: ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production; that help maintain ecosystems; that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

SDG5: Achieve gender equality and empower all women and girls

7. T5.1: end all forms of discrimination against all women and girls everywhere

SDG 6: Ensure availability and sustainable management of water and sanitation for all (SDG6)

Indicators about IWRMP etc being quantified

SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all:

8. T8.1: sustain per capita economic growth and, in particular, at least 7 percent GDP per annum in the LDCs
9. T8.3: promote development-oriented policies that support productive activities, decent job creation, entrepreneurship,

creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services

10. T8.5: achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
11. T8.10: strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

SDG 12: Ensure sustainable consumption and production patterns:

12. T12.2: achieve the sustainable management and efficient use of natural resources

SDG 13: Take urgent action to combat climate change and its impacts:

Indicators being quantified

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

13. T15.1: ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands
14. T15.2: promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and increase afforestation and reforestation
15. T15.4: ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
16. T15.5: take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species
17. T15.9: integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

Note: T1.4 refers to SDG1's target indicator no 4 that are quantified for Nepal, and so on
Source: Based on NPC (2015) SDGs 2016-2030 National (Preliminary) Report

2.7 Food Insecurity

106. One worrying aspect related to poverty is **malnutrition**. Indicators of malnutrition, particularly of children are still high not only in traditionally food deficit areas but increasingly also in food surplus areas. About 42% of children less than 5 years old suffer from stunting (NLSS 2010/11); the incidence of stunting reduced to 37.4% by 2014 against the MDG target of 30% by 2015 (CBS MICS 2014, and SDG Report 2015) .

107. Three and half million people in Nepal, 13% of the population, are considered to be insecure in food moderately to severely, and 42 out of 75 districts are classified as food insecure with respect to food grains[24]. By 2014/15, the number of food deficit districts decreased to 32 out of 75 (MoAD Year Book), and 41% of the population are deprived from consuming the recommended minimum calories daily, and 26 districts in remote areas are food insecure (NPC 14th Plan Approach Paper). Cereal yields are among the lowest in South Asia region. The national cereal balance has been more or less in equilibrium, but is in deficit in years of inadequate monsoon rainfall. The 2014/15 cereal balance was a surplus of about 156,000 tons, equivalent to over 2.9% of total requirement, but in the past decade, Nepal's average food grain import was about 12.0% of gross domestic production annually in 2015[25]. Despite national food grain surplus in 2011/12, about 1.8 million people received staple food supplements from Government–an evidence that persistent food poverty, malnutrition, and food vulnerability can occur even if the country is "food self-sufficient". Nepal is expected to follow trends in other Asian countries: more wheat products will replace rice in the diet. The deficit that may increase is for animal feeds (maize and soybean, etc.) as demand for meat and other livestock products increases. At least for maize, there is considerable potential to improve based on higher yields from improved varieties achieved by a growing number of maize farmers.

[24]Draft Food and Nutrition Security Plan, MOAD 2012
[25]MOAD Statistics, 2012. MOAD Year Book 2014/15, and MOF Economic Survey 2015/16, and TEPC (2016) Foreign Trade Statistics

108. Food and nutrition insecurity varies substantially across the fifteen sub-regions of the country as measured by the hunger index. The highest prevalence of hunger is in the Far- and Mid-Western Hill and Mountain regions, but malnutrition in food surplus areas of the Terai indicates that food utilization is also a problem. The global food price crisis in 2008-9 demonstrated that rural and urban poor are particularly vulnerable to high food prices. An indicator of this aspect of food insecurity is that the major portion of household expenses is on food which has risen slightly from 59% in 2003/4 to 62% in 2010/11, but it declined to 59% in 2012/13 and 57% in 2013/14, and to 43% in 2014/15[26]. More positively, the percent of households reporting inadequate food consumption has dropped substantially from 51% in 1995/6 to 16% in 2010/11, and it dropped to 14.2% during July-November 2014.

109. Food security is often confused with calorie intake rather than a balanced diet of nutritious food. Protein from livestock sources in the Nepalese diet is a low 13% (compared to recommended 30%), but demand is increasing by 8-10% annually as incomes increase[27]. Domestic production does not meet demand, contributing to about US$67 million in imports of dairy, meat and eggs in 2010/11[28]; the import of livestock products remained as US$44 million in 2015/16. The situation and trend for fruit and vegetables is more critical because the imports of fruits increased from US$65 million to US$117 million and the import of vegetables increased from US$51 million to US$160 million between 2010/11 and 2015/16.

2.8 Some Positive Signals in the Agriculture Sector

110. In spite of the low development stage, there are some positive signals in the agriculture sector. For example, income per capita and productivity of agricultural labor have increased, poverty has reduced, and malnutrition has declined. The road network has considerably expanded and irrigation coverage has increased as well. In almost all agriculture subsectors (crops, livestock, fishery, and forestry) there has been progress in terms of production or/and productivity.

111. **Agribusiness and commercial agriculture** is growing. The poultry and dairy processing industries are moving fast and the private sector is improving productivity; other dynamic agribusiness sectors include tea, flowers and vegetable seeds (Table 14). Poultry production has adopted a highly commercial profile and scale, solely through private sector investment. Growth in the poultry sector is an example of mobilizing private investment with the right policy and regulatory environment, demand growth, agribusiness functioning in the value chain (for feed, egg and meat processing, cold storage and distribution). The total real sales of all the agri-business enterprises in increased by 22.9% annually during 1996/97-2003/04. Based on the agribusiness-related Census of Manufacturing Establishments (CME) during 1996/97-2011/12, the annual growth rates of employment, investment and output were 6.9%, 8.7% and 5.9%, respectively. Here, the leading agribusiness sub-sectors or commodities are meat and it products; floriculture; tea, coffee and spices; and vegetable seeds (Table 14-b). During 2008/09 – 2014/15, the companies processing and manufacturing agricultural products increased from … to 10,564., by February 2016 there were 12,221 agricultural cooperatives (mostly, dairy, vegetables, MAPs, tea, coffee, , honey and citrus), and 17,685 registered community forestry groups[29].

[26]NLSSIII 2010/11. CBS AHS 2012/13 and 2013/14, NRB Household Budget survey 2014/15, NeKSAP Nepal Food Security Bulleting Year 2015, Issue 43

[27]NPC 2011.*Nepal Nutrition Assessment and Gap Analysis.*

[28]Draft Food and Nutrition Security Plan, MOAD 2012. TEPC and Department of Customs Foreign Trade Statistics

[29]DCSI 2015 Industrial Promotion Statistics; MoF Economic Survey (2016); Department of Forests (http://dof.gov.np/dof_community_forest_division/community_forestry_dof) Accessed July 2016.

Table 14: Annual growth in agribusiness indicators 1996/97-2003/04 (%/year)

Agribusiness Units	Production	Sales Volume	Export Value	Employment	Investment
Dairy	65	51	-	8	159
Tea	23	36	41	28	23
Floriculture	18	37	156	35	35
Vegetable seeds	28	28	96	17	17
Poultry	5	8	-	5	6

Note: Growth rate of production and employment are based on physical quantities; and the growth of sales, exports and investment are in current prices; the manufacturing prices increased by 31% during 1996/97-2003/04

Source: IDL Ltd and SEEPORTLtd (2007). "APP Implementation Status Report Vol 1". DFID and Government of Nepal, 2007,

Table 14 (b) Growth in Agribusiness Indicators based on Census of Manufacturing Establishments (CME) in constant prices of 1996/97 = 100

	Manufacturing groups related to agribusiness	**Units**	**CME Years** 1996/97	2001/02	2006/07	2011/12	**Av Growth 1996/97 - 2011/12 (%/yr)**
I	**Manufacturing of meat and meat products**						
1	Establishments	Nos	2	3	4	3	3.9
2	Persons engaged	Nos		98	83	145	5.9
3	Wages, salaries & other benefits	Mn Rs		2.0	2.3	5.4	14.9
4	Gross fixed assets by year end	Mn Rs		8.3	24.5	9.7	13.4
5	Value of output	Mn Rs		38.2	31.5	30.7	29.7
6	Value of input	Mn Rs		28.5	18.5	99.1	40.1
7	Value added	Mn Rs		9.7	13.0	31.6	17.6
II	**Processing and preserving of fruits and vegetables**						
1	Establishments	Nos	2	3	4	7	10.6
2	Persons engaged	Nos		230	292	372	5.4
3	Wages, salaries & other benefits	Mn Rs		7.7	11.1	14.9	7.7
4	Gross fixed assets by year end	Mn Rs		11.1	20.9	125.1	58.6
5	Value of output	Mn Rs		73.2	90.0	120.6	5.7
6	Value of input	Mn Rs		47.5	53.9	89.6	8.0
7	Value added	Mn Rs		25.8	36.0	31.0	2.6
III	**Manufacture of dairy products**						
1	Establishments	Nos	26	39	39	56	6.2
2	Persons engaged	Nos	1,841	1,978	2,131	2,049	0.8
3	Wages, salaries & other benefits	Mn Rs	64.9	82.2	78.5	124.0	5.3
4	Gross fixed assets by year end	Mn Rs	594.7	657.8	1,841.2	830.4	9.0
5	Value of output	Mn Rs	1,466.2	1,786.6	1,814.7	2,547.1	4.3
6	Value of input	Mn Rs	898.7	1,505.2	1,515.4	1,873.0	6.1
7	Value added	Mn Rs	567.5	281.4	299.3	674.1	5.4
Iv	**Manufacture of other food products n.e.c.**						
1	Establishments	Nos	43	62	53	67	3.7
2	Persons engaged	Nos	1,898	6,533	3,675	3,440	12.9
3	Wages, salaries & other benefits	Mn Rs	31.3	130.0	134.1	91.5	19.1
4	Gross fixed assets by year end	Mn Rs	324.6	510.2	860.0	941.8	9.0
5	Value of output	Mn Rs	310.9	683.8	840.5	968.0	10.5
6	Value of input	Mn Rs	183.3	418.1	544.8	657.7	11.9
7	Value added	Mn Rs	127.6	265.7	295.7	310.2	8.3
V	**Sum of agribusiness related manufactures**						
1	Establishments	Nos	73	107	100	133	4.9
2	Persons engaged	Nos	3,739	8,839	6,181	6,006	6.9
3	Wages, salaries & other benefits	Mn Rs	96	222	226	236	9.1
4	Gross fixed assets by year end	Mn Rs	919	1,187	2,747	1,907	8.7

5	Value of output	Mn Rs	1,777	2,582	2,777	3,766	5.9
6	Value of input	Mn Rs	1,082	1,999	2,133	2,719	7.9
7	Value added	Mn Rs	695	583	644	1,047	3.8
VI	Floriculture						
	Production	Ropanies	105	245	691	711	21.2
VII	Vegetable seeds						
	Production	MT	419	729	841	950	6.8

Source: CBS CME 1996/97, 2001/02, 2006/07, and 2011/12; FAN 2016; and DoA/VDD 2014, and SSSC database

112. **Production** of fruit and vegetables, vegetable seeds, coffee, goats, and honey is accelerating. Vegetable production has grown consistently, by average of 5.6 %/year during 1995/96 – 2015/16[30]. Tea and coffee production have grown between 12.2 % and 18.1 % annually during 1996/97 - 2015/16. Yields of most commodities have increased, but the large gaps in yields between best agricultural practices and average farm practices shows there is considerable potential for increase, particularly with better knowledge of how to use the existing available seeds, breeds, fertilizer and irrigation. Maize and wheat yields have grown by 2.1% and 2.3% per annum during 1995/96 – 2015/16, and real net returns from agricultural crops (paddy, wheat and maize) have increased some 33% between 1994/95 – 2014/15[31].

113. **Investment** in agriculture, agribusiness and rural development by Government, development partners, and the private sector has increased since 2000, due to global and domestic factors including a more stable business environment[32]. For example, Morang Merchant Association and Chambers of Commerce and Industry report that Rs 2 billion industrial investment has been made in the Sunsari-Morang corridor between April 2010 and October 2011 in response to settlement of wage disputes and the integration process of Maoist combatants[33]. Investment includes soy processing , rice milling, biscuit manufacture, and plywood; from both domestic and Indian investors. The private sector has invested quite strongly in dairy processing and marketing, and private sector investment (both capital and recurrent expenses) in the poultry sector is about Rs 31 billion in 2013/14(CBS Nepal Commercial Poultry Survey 2015).

114. Several **policy** formulations including the National Agriculture Sector Development Policy 2010, the Three-Year Plans (TYPs), Rural Infrastructure Plan 2004, Agro-Business Promotion Policy 2006, and several others are all emphasizing the central role of agriculture and the need of support to develop the sector. In addition, specific policies for seeds, land use, irrigation, trade and other key areas have been revised and harmonized with agriculture sector priorities.

115. Access to **infrastructure** and services including road, market, irrigation banks and agricultural service centers have also considerably improved (Table 15). Outside of the agriculture sector, the information and communication technology (ICT**)** revolution is also affecting Nepal, where nearly all the population has access to telephone, and 90% of the geographical area is serviceable by the mobile networks.

Table 15: Infrastructure Progress

Households with Access to Facilities	**1995/96**	**2003/04**	**2010/11**	**2015/16**

[30]MOAC Agriculture Information Book (2014/15) and Economic Survey (2016) .
[31]Calculations (agri-GDP deflated) from CBS Statistical Yearbook 2005, 2011, 2016; MoAD Year Books for Cost of Production and Returns; and DoA/APMDD (2015) Cost, Production and Price Spread of Cereal Crops in Nepal: A Time Series Analysis.
[32]MOF Economic Survey 2011
[33]L. Ghimire 2011. *Sunsari-Morang corridor sees fresh investments pouring in*. Kathmandu Post Nov. 20, 2011.

Agricultural Service Center	25%	32%	43%	48 % (*)
Commercial Bank	21%	28%	40%	45 % (*)
Market Center	24%	34%	45%	51 % (*)
Vehicle passable road	58%	68%	80%	86% (*)
Electricity	14%	37%	70%	74%
Irrigated land area (% of land)	40%	43%	55%	55%

Note" (*) The values of indicators for 2015/16 are linear-equation estimates based on historic trends
Source: NLSSIII, DOI (2016), NSCA (2001/02), NSCA (2011/12), NPC Approach Paper for 14th Plan

2.9 APP Targets and Achievements

116. The Agriculture Perspective Plan (APP) is the long term plan and strategy that informed agriculture development in Nepal for the 1995/96 – 2014/14 period. Over this period, several other periodic plans, programs, and policies have been formulated and implemented. In most cases, these other plans are consistent with the APP.

117. The APP was designed to increase agricultural growth whereby per capita AGDP will grow from its 1995 level of 0.5% to 4% per year. This growth was expected to stimulate non-agricultural growth in employment-intensive goods and services in both urban and rural areas. This would open up job opportunities for the poor, particularly poor women, and thereby help reduce the number of rural poor. With implementation of the APP the incidence of poverty was expected to come down from 42% in 1991/92 to 14% in 2014/15, whereas the latter figure without the APP would have been 29%. Poverty in 2015/16 is estimated at 21.6 %, which is still far from the APP target. The increase in agricultural productivity was also expected to help protect the environment by removing the most fragile land resources from agriculture and putting them under suitable forest cover and other sustainable uses.

118. The overall objectives of APP were as follows:

- accelerate the growth rate in agriculture through increased factor productivity;
- alleviate poverty and achieve significant improvement in the standard of living through accelerated growth and expanded employment opportunities;
- transform agriculture from subsistence to commercial orientation through diversification and realization of comparative advantage;
- expand opportunities for overall economic transformation by fulfilling the preconditions of agricultural development; and
- identify immediate, short-term and long-term strategies for implementation, and provide clear guidelines for preparing future periodic plans and programs.

119. The APP strategy is to accelerate the agricultural growth rate sufficiently to obtain strong multiplier effects on growth and employment, in both the agricultural and non-agriculture sectors. This growth would occur through technological change to be achieved through investment in research and extension. The APP aims for a broad-based participatory growth across regions and income classes and emphasizes sub-sectors, particularly women.

120. The following six strategic thrusts are identified as essential to achieve APP objectives:

- a technology-based green revolution in agriculture which becomes the initial engine of accelerated growth;
- accelerated agricultural growth which creates a demand-pull for the production of high-value commodities in agriculture, as well as for non-agricultural commodities, with consequent large multiplier effects on other sectors of the economy;
- broadly based high employment growth, which then becomes the mechanism for achieving societal objectives;

- public policy and investment focus on a small number of priorities, building on past investment in human capital and physical and institutional infrastructure;
- a package approach to development, which would be different for the Terai, Hills and Mountains and would recognize the powerful complementation between public and private investment and priorities, and would ensure their co-ordination; and
- a regionally balanced and gender-balanced approach that explicitly ensures the participation of women and therefore achieves broad participation.

121. APP design gave priority to certain key inputs (i.e. irrigation, fertilizer, technology, roads and power, and financial credit for agriculture), and key outputs (i.e. livestock, high value crops, agribusiness, and forestry), that were envisaged to deliver the policy's expected social, economic and environmental impacts. These priorities remain relevant to in the present context, in addition to current and emerging issues such as food security, trade and agribusiness, climate change and natural resource sustainability.

122. Agriculture sector growth has been less than the APP target of 4 % annual AGDP growth, achieving an average of 3.2 %, slightly below the national GDP average growth of 4.0 % during 1995/96 – 2015/16; however, the AGDP growth declined to 0.8 % in 2014/15 and 1.3% in 2015/16 which pulled the growth trend downwards[34]. APP targets and achievements are summarized in Table 16.

Table 16 Summary of APP targets and achievements

Item	Targets	Achievement as of 2010	Achievement up to 2015	Data Source
Inputs				
Irrigation	1.44 million ha	1.23 million ha (2009)	1.37 million ha (2015)	DOI, 2010 & DOI, 2016
Fertilizer	131 kg/ha Reform of AIC Ltd	102 kg/ha (2001) Partial reform, subsidy amount fluctuated. Illegal fertilizer imports supply 70% of needs	131.35 kg/ha (2015/16)	Agriculture Sector Performance Review, 2001, ADB Y. Thapa. (2006) Informal Cross Border Trade, FAO NSCA 2011/12 and Dept of Customs FTS 2015/16
Technology services	No target, but aim to support priorities.	Limited responsiveness to farmer needs. NARC priority on cereals, not high value products. Government Investment growth rate: Extension 8% vs. Research 1.2% (1996-2005). Devolution issues remain	Limited responsiveness to farmer needs. NARC priorities in budgeting crops (28%), livestock (20%), horticulture (14%), fisheries (7%) and multi-sector activities (30%) are congruent to their share in AGDP; focus on HVAC limited Government Investment growth rate: Extension 27.8% vs. Research 24.1% (2006/07-	APP Implementation Status Report, MOAC, 2006. NARC Research review report. MOAC, 2005 MoF Red book (2006/07-2015/16) NARC's Strategic Vision for Agri Research 2011-2030

[34]CBS National Accounts Estimates, Nepal 2016 .

Item	Targets	Achievement as of 2010	Achievement up to 2015	Data Source
			2015/16). Devolution issues remain	
Roads and Power	6,200 km rural roads 9,496 km of 400/220V distribution line	17,244 km of rural roads 15,106 km of distribution line	60,000 km rural roads 89,540 km of 400/230 v distribution line	MoPPW (2011), "Statistic of Strategic Road Network 2009/10", prepared by Department of Roads, MoPPW, 2011 MoSTE, 2016, "Road, Rail and Transport Development five years (2073-2078) Strategic Plan for Prosperous Nepal", prepared by Ministry of Physical Infrastructure and Transport", 2016 NPC (2011), "Three Years Plan (2010/11 – 2012/13)" , prepared by Nepal Planning Commission, June 2011 NPC (1995), "APP Final Report", prepared by National Planning Commission ,1995 *Nepal Electricity Authority (NEA), August 2011* Economic Survey, 2016 and NEA, 2016 (database)
Credit	109.5 billion estimated need, 75% from ADB/N	ADB/N and Small Farmer Development Bank loans to agriculture about 50 billion	65.2 billion loans to agriculture of which, 28.41% is by ADB/N (2015)	ADB/N 2011 APP Implementation Status Report, MOAC, 2006. NRB, 2015
Outputs				
Livestock	45% of Ag GDP	29.4% in 2011. Private sector investing in dairy and poultry	24.6 % in 2015/16. Private sector investing in dairy and poultry	MOAC Statistical Yearbook 2011, and 2015 Economic Survey, 2016
High Value Crops	5.8% of Ag GDP	11.8% (fruit and vegetables) in 2011	23.4% (fruit and vegetables) in 2015/16	As above Economic Survey, 2016

Item	Targets	Achievement as of 2010	Achievement up to 2015	Data Source
Agribusiness	No target, except institutional development, and private investment	Commodity associations and Agri-Enterprise Center in FNCCI formed. Dept. of Agribusiness Promotion established. Investment growth at current prices (1996/97-2003/04): dairy 159 %, floriculture 35 %, tea 23 %, vegetable seeds 17 %, poultry 6 %	Investment growth in constant prices (1996/97=100) during (1996/97-2011/12): dairy 9%; processing of tea, coffee and spices 9%; processing and preserving of vegetables and fruits 59%; and manufacturing of meat and meat products 13%	APP Implementation Status Report, MOAC, 2006. CBS, 2011 ; CBS CME 1996/97, 2001/02, 2005/06, and 2011/12; and CBS National Accounts for manufacturing sector price deflators
Forestry	2.3% of Ag GDP, Establish CFUGs	8.6% of Ag GDP average 2001-2011, About 13,800 community forestry user groups (CFUGs) established.	6.7 % of Ag GDP in -2015/16. 17,685 CFUs established, and 7,685 leasehold forest groups established.	CBS, 2011 FECOFUN, 2010 DOF, 2016 Economic Survey, 2016

123. **The overall performance of APP has been mixed**. The APP period saw a dramatic improvement in rural road infrastructure, community forest, and horticulture. Irrigation expanded considerably even though did not achieve the groundwater targets that were set by the APP. Within livestock, subsectors such as dairy processing and poultry performed quite well. Cereals sector in general did not perform well, partly because of the deficiency in availability of inputs such as improved seeds and timely, quality, and affordable chemical fertilizer, and partly because of higher incentives for farmers to engage in higher value commodity production.

124. The implementation of the APP was not helped by the conflict that plagued the country during approximately the first 10 years of the APP period. Combined with a reduced investment in the sector by both the Government and donors, program implementation could not be according to plan. The dramatic reduction of government and donor support for the agriculture sector after 2001/2002 was largely linked to the escalating conflict. The period between 2001/2002 and 2007 witnessed also the lowest growth of cereals. Other subsectors like horticulture, roads, and fisheries have however fared relatively well in spite of lower support from the government and donor in agriculture. The explanation of the weak performance of the APP therefore cannot be solely attributed to a single factor i.e., reduction of government and donor support during the years (2001/02 to 2006/2007) of intensification of the conflict.

125. In addition to the reduced support of the government and donors there are other factors that contributed to the weak performance of the APP including:

a) Lack of coordination
b) Withdrawal of subsidies on fertilizer and tube wells (shallow and deep tube wells)(the government has resumed the subsidy recently)
c) Faults in the design and economic assumptions of the APP
d) Weak institutional capacity on project/program implementation
e) Lack of attention on legal issues
f) Lack of attention in social and geographic inclusiveness
g) Low attention in Land Management issues
h) Inadequate consideration of Regional Trade

2.10 Review of Constraints to the APP Performance

126. The APP was reviewed in 2001/2002 as part of the Agriculture Sector Performance Review (ASPR) and in 2006 as part of the Agricultural Perspective Plan Support Program (APPSP). The mixed performance of the APP was one of the reasons for the request by GoN to formulate a new long-term strategy for Nepal, namely the ADS. Other reasons included a changed internal and external context. The explanation of the slow progress is based on eight sets of interrelated factors discussed as follows.

2.10.1 Implementation

127. Implementation of the APP was penalized by declining public investment over the first years after its adoption, and particularly in the period of more intense conflict from 2001 to 2006. During this period both the government and development partners reduced public investment in agricultural programs. Policy inconsistency, particularly as related to subsidies, resulted in a loss of policy credibility and a very uncertain environment for private investment. Lack of continuity in leadership made it even more difficult to resolve the coordination issues that plagued the implementation of the APP.

2.10.2 Legal Aspects

128. The APP Report was not accompanied by a legal annex nor are there similar annexes to any of the subsequent agriculture sector policies adopted by the GoN[35]. The APP did not establish targets and performance indicators for legislative enactments. In fact despite the importance of the APP to the economic development of Nepal, the APP failed to address the impact of existing legislation on the implementation of the APP nor did it propose specific legislative changes that would be necessary to implement it. This holds true also for policies adopted after the APP. As a result, many of the policies were implemented on the basis of pre-existing legislation which apart from being outdated also was not adapted to the policies of the Government. While in recent years an active effort is made to start the process of drafting new legislation (new Umbrella Land Act, new Water Resources Act) there remains a backlog in the legislative agenda.

129. Different views have been expressed on the question whether the poor implementation status of the APP and other policies should be attributed to lacunae in legislative provisions, to over-legislation or whether the legislation is adequate and the problem lies in the realm of implementation. The assumption of the ADS TA Team is that all three factors might be present in different areas of intervention and that there is no single factor that is a dominant one. The fact is however that neither the APP nor subsequent policies were accompanied by legislative annexes which may lead to the conclusion that no systematic review of legislative provisions in light of policies that are adopted takes place. In other words, while the GON and the parliament adopt policies and new legislation, there is not necessarily a connection between the two parallel efforts.

130. The need for adequate legislation cannot be underestimated. The rule of law and the certainty it provides for the stakeholders involved in the economy is one of the cornerstones for the development of a sustainable economy in which the rules of the game are clear and not subject to random interpretation or application. More specifically, there is a need to ensure that there is an

[35] See for example Section 1.4.13 of the 2004 Irrigation Policy which states that "The legal and institutional reform shall be made for the achievement of the objectives of this Policy as per necessity." No legislative document was attached.

enabling legislative framework that allows the function of users organizations to operate, maintain and develop irrigation systems, that there is adequate legislation to allow the functioning of cooperatives in the value chain of the agricultural protection with adequate governmental oversight, that trade legislation and agreements enhances the ability of high value crops growers to export their produce and that the Nepalese farmers have the tools to allow them to meet the food safety and quality standards of import markets, to name but a few.

2.10.3 Design Aspects

131. Even though the APP was a very useful document to focus the attention of policy makers on agricultural growth and its contribution to overall development, there were some design issues that were already recognized as weaknesses in the 2001/02 Agriculture Sector Performance Review. These design issues include:

- **Rigid targets** and traditional top-down approach
- **Simplistic view of technology** adoption process based on input/output relations and little attention given to incentives and demand supply relations
- **Narrow** green revolution perspective - that sees the main source of growth in fertilizer and irrigation
- **Emphasis on guiding inputs and outputs** rather than on outcomes and impacts, and
- **Lack of systems for re-planning** based on evaluation of actual results achieved.

2.10.4 Conflict

132. The 12 years conflict that concluded with the ceasefire in 2006 had negative impact[36] on the agriculture sector that include:

a) Limitation in accessing marginalized and remote areas for development projects.
b) Access to market and economic activities constrained by hostilities and frequent *bandh* and other disturbances.
c) Landowners often fled, so there was reduced investment and economic activities in the rural areas, land was barren and rural people had neither food nor wages.
d) Productive labor (men and women aged 18 to 40) engaged in the armed conflict instead of agriculture.
e) Instability and risk prevented or reduced private sector investment, and
f) Destruction of rural physical infrastructure.

2.10.5 Politics and Policies

133. Politics in Nepal has been characterized by frequent changes and short tenures of cabinets. Both before and after the conflict, similar tendencies repeated. During the 20 years of the APP, there have been 22 Prime Ministers and 18 Secretaries of MoAD. This has reduced coordination and commitment to carry out policies, plans, and investments.

134. Most policies in Nepal are supportive of agriculture. However, numerous policies have been left at a draft stage, not implemented, often lack supporting legislation and resources, because of the combination of various factors such as:

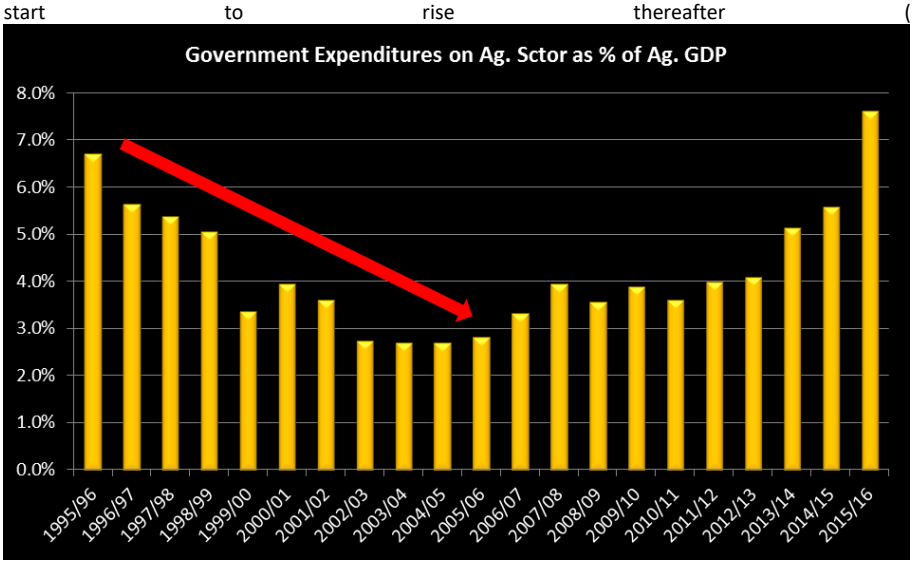
a. Limited implementation capacity
b. Limited financial resources
c. Poor coordination

[36] See Chhaya Jha and Tracy Vienings 2004, Peace and Conflict Impact Assessment Summary, Canadian International Development Agency; and
Anjana Shakya 2009, Social Impact of Armed Conflict in Nepal: Cause and Impact.

d. Lack of supporting legislation
e. Lack of monitoring and evaluation

2.10.6 Investment

135. Government expenditures on the agriculture sector include both capital and recurrent expenditures and are presented in Figure 7. There are two clear patterns. First, a dip in sector expenditures in the early 2000's possibly related to the conflict but also to declining donor assistance. Second, recurrent expenditures were higher than capital expenditure during most of the 2000's, an indication that investment programs might have been reduced during this period. Government expenditure in the agriculture sector as a ratio of AGDP declined up to 2005/06 and start to rise thereafter (Figure 8).



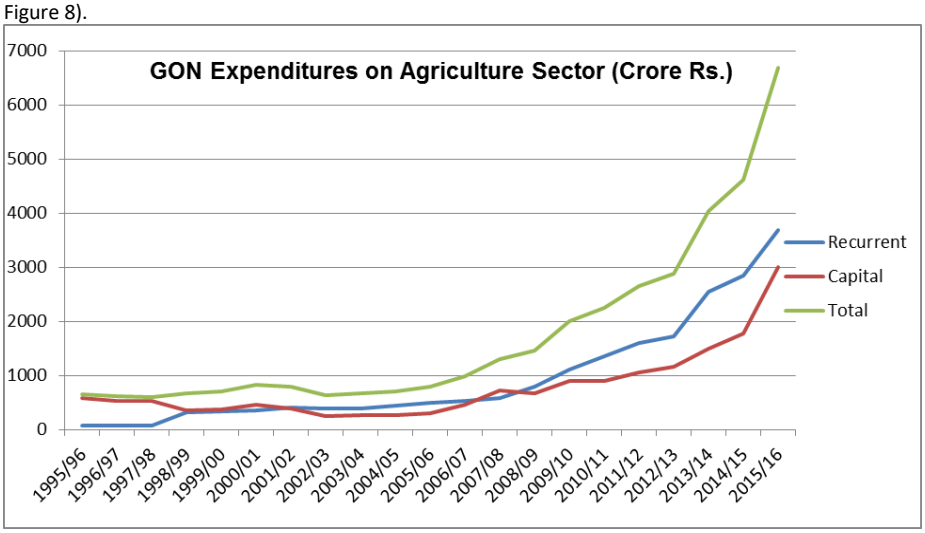


Figure 7: Trends in Government Expenditures in Agriculture Sector
Source: Economic Survey 2006 and 2016 , Ministry of Finance
Note: Agriculture Sector includes: Crops, livestock, Forestry, Irrigation, Land Reform, and Survey

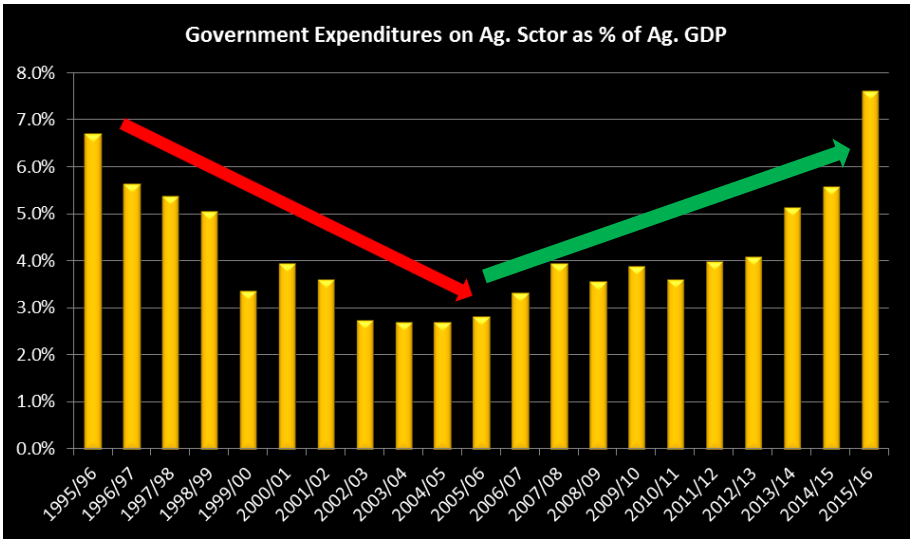


Figure 8: Government Expenditures as Percent of Agricultural GDP
Source: MoF Economic Survey, 2003, 2006, and 2016.
Note: Agriculture Sector includes: Crops, livestock, Forestry, Irrigation, Land Reform, and Survey

136. For the first five years after the Government of Nepal began implementing APP, **donor assistance** to agriculture, irrigation and forestry stayed relatively constant until a major change in donor strategy in 2001 that shifts away from loans to increasing assistance in grant form (

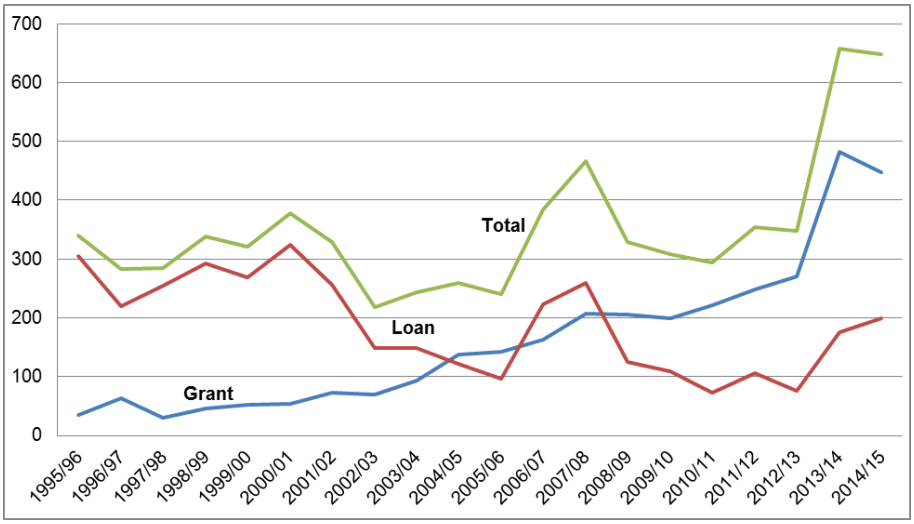


Figure 9). Both loans and grants increased following cessation of conflict in 2006 until 2009. Subsequently donor commitment to the sector has increased, but disbursement has been constrained by Government's partial budget in 2012/13, and limited capacity[37]. The NPPR 2015 recorded that the MOAD has sought to improve the situation by ensuring aid harmonization and increasing synergy by holding coordination events to promote the sectoral approach, and to overcome the inadequate investment in agriculture.

[37]MOF, 2013 and 2015. Report on Nepal Donor Portfolio Performance Review Conference;

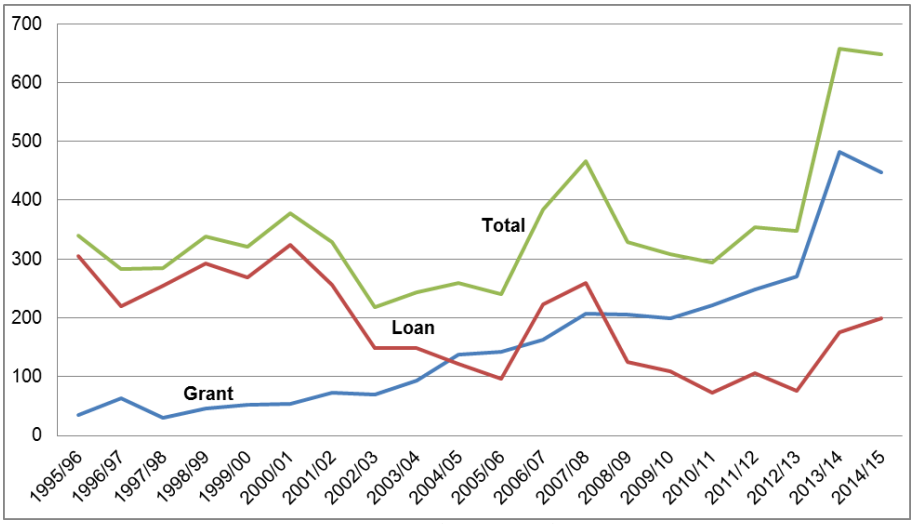


Figure 9: Donor Assistance to the Agriculture Sector (Rs 10 million)
Source: Economic Survey 2002, 2006, 2015 & 2016, Ministry of Finance. Includes agriculture, irrigation,forestry, and land reform and survey

137. With few exceptions (i.e. dairy processing, poultry, tea, flower, vegetable seeds), there has been little private sector investment, partly because of an unstable political situation and partly because of risk and the lack of a conducive environment for investment.

2.10.7 Capacity and Human Resources

138. Capacity is reflected both in terms of (i) institutional capacity and (ii) human resources capacity. Limited capacity of relevant institutions in policy analysis, planning, service delivery, and implementation. There is little analytical work and output related to policy. Formulation of policy occurs often without adequate analytical or evidence-based analysis. Policy implementation is insufficiently monitored and evaluated, or is delayed until it is too late to make adjustments and corrections. Limited human resources to serve large farming population and inadequately trained service providers result in poor quality of service delivery and inability to meet service demand of a large population of farmers and potential agribusiness enterprises. Currently, in the case of crops, there is one extension agent to serve approximately 1,399 farmer households[38]. The agriculture education is not promoted in school level course curricula in order to develop massive human resources in agriculture and allied fields. Similarly agriculture colleges were not sufficiently established to develop entrepreneur farmers across the nation. The improvement of capacity of existing human resources is also limited by declining budgets for training and capacity building and limited incentives to provide services, particularly in areas that are not easily accessible.

2.10.8 Plans

[38]This was based on estimates by the TA Team of about 2,875 Crop extension workers (including subject matter specialists and supporting technical staff, source: www.doanepal.gov.np) and a farmer households of 3.364 million in 2001, 3.831 million in 2011 and estimated population of farmer households of 4.021 million in 2015 with a growth rate of 1.22% annually (CBS: National Sample Census of Agriculture).

139. Periodic plans include 5-year plans, 3-year plans, and multi-year plans like the APP. Planned development process was initiated in Nepal in 1956/57, and now has completed ten periodic Five-Year plans and three Three-Year interim plans, till 2015/16. The major issues of periodic plans include:

- Budgetary allocations were hardly ever as envisaged in plans
- Institutional development aspects were either not properly planned or not implemented as planned
- Human resources development was not properly planned and not implemented as planned
- Except for the rituals of midterm review and final evaluation, there was no system of regular monitoring of plan implementation.
- From Eighth to Tenth Plans and even in Three Years Interim Plan Periods aspects such as institutional development, infrastructure development, research, human resource development, and strengthening manpower were not prioritized but sometimes discouraged. Consequently agriculture sector capacity has been weakened.
- Consistently with the Ninth and Tenth Plans, in the Three Year Interim Plans more focus was given to the social sector at the cost of developmental sectors such as agriculture.
- Peoples' participation in the local governance has been low pending gaps in the acceleration of decentralization and devolution, community level service delivery, and institutionalization of democracy at the grass root levels.
- Inadequate canalization of the increased remittance inflows in to the productive sectors, and mobilizing the NRN and other foreign agencies willingness to invest more.
- Gaps in policy and legislative frameworks, and implementation mechanisms.
- Information system having weak documentation of data and literature, initial stages of adopting the software on programme performance information system, and the National M&E Directives 2070, and utilization of their feed backs.
-

2.11 Summary and Lessons Learned from the APP

140. Agriculture in Nepal is currently more developed than it was 20 years ago, at the beginning of the APP. In less than a generation, society in Nepal has witnessed enormous turmoil and change. During these years, agriculture has been able to grow, sometimes against formidable odds presented both by internal and external factors. A disruptive conflict had negative implications for the implementation of policies, plans, and projects; both local elites and a sizable share of the labor force have abandoned rural areas depriving agriculture of needed capital, resources, and labor; while increasing pressure on infrastructure and peri-urban area of already crowded major cities. Frequent changes in cabinets made the continuity of leadership and tenures of senior officers impossible, thus making implementation of programs more difficult. In spite of numerous policies favorable to agriculture were drafted or approved, their implementation remained poor due to a combination of factors due to the lack of resources, weak capacity, credibility of policies, and the lack of supporting legislation. The APP has mixed results due to this complex of factors. Not one factor can be identified as responsible for the lackluster performance of agriculture under the APP. Yet several lessons can be derived to improve the formulation of the ADS.

141. Review of the APP highlights important lessons from the difficulties encountered by the APP and the pitfalls that need to be avoided in the new long-term strategy for the agriculture sector in Nepal. The lessons have been part of a checklist for formulation of the ADS that are as follows:

1. Does the lead agency have authority and capacity for coordination?
2. Are resources available for implementing?
3. Is M&E conducted timely? Is it used by the coordination agency effectively?
4. Is the private sector on board? Is Public Private Partnership part of the strategy?

5. Are we sure that our implementation approach (e.g. value chain, cluster, pocket) is not bogged down by administrative constraints (e.g. approach limited to district)?
6. Are we focusing on results and impact, rather than on inputs and outputs?
7. Did we include women, marginalized groups and remote geographic areas?
8. Did we ensure that supporting laws and regulations are in place?
9. Do we have self-correction mechanisms in place (eg, how to adapt climate change, food price crisis, new subsidy policies, migration; how to respond to curtailing of resources)
10. Are the local institutions ready for implementation? If not what do we do?
11. Have we included a risk management system that continuously evaluates the risks facing the strategy implementation and proposes methods to mitigate and manage those risks?

2.12 Summary of Key Issues for the ADS

142. The assessment of the agriculture sector aimed at identifying the key issues that need to be considered in the new agriculture development strategy. The identification of key issues is partly an analytical exercise of reviewing the literature and the data, and partly the outcome of a consultation process with the stakeholders. The key issues for the ADS are summarized in Table 17 and related appendices.

Table 17: Summary of Key Issues for the ADS

No.	Category	Issues
1.	**Productivity**	There is considerable potential for growth of agricultural productivity in Nepal. Currently the level and the growth of productivity is low due to a number of factors including an ineffective and underfunded agricultural research and technology transfer system, lack of effective mechanism for linking research extension and farmers, the low availability of year-round irrigation, limited availability and affordability of key inputs (fertilizer, seed, breeds, etc.), declining soil fertility, poor integration of research and extension with the agricultural education system, and high incidence of pests and diseases.
2.	**Competitiveness**	Nepal is ranking very low in competitiveness measures. Constraints to competitiveness include poor infrastructure, weak governance, limited capacity and human resources, an overvalued exchange rate, difficulty to access credit and doing business. Improvement in competitiveness of Nepal agriculture could result in a strong performance of high value exports. Currently competitiveness of agricultural products from Nepal is low and declining. Most exported products are in raw forms and value addition is done in destination markets. The potential for high value food and agricultural exports is limited by the lack of a well functioning system for quality and safety control, low technology, difficulty of doing business, and poor infrastructure.
3.	**Trade**	Nepal-India Trade Treaty has de facto created free trade between the two countries and resulted in Indian products outcompeting some of the Nepalese agricultural produce in Nepalese domestic market, particularly in the cereal market. Due to lack of good farming and manufacturing practices, it has been difficult for Nepalese farm products to comply with international quality standards. As a result, Nepalese products face non-tariff barriers in the form of sanitary and phyto-sanitary (SPS) and technical standards in the export markets. Pegged exchange regime with India has resulted in erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets. One of the issues of agriculture trade is how to use trade policy instruments in securing food security through self reliant food economy.
4.	**Commercialization**	Agriculture and agribusiness investment are constrained by inadequate suitable policies (e.g. contract farming), competition with state enterprises and cooperatives, lack of services and infrastructure to support value chain

No.	Category	Issues
		development (e.g. agribusiness incubators, agroindustrial parks), low coverage of agricultural insurance, and a transparent and stable tax and incentive system to promote innovation and reduce risk. The key issue is how to increase sustainable and profitable investment in agriculture and agribusiness that could accelerate growth and modernization of agriculture.
5.	**Infrastructure**	In order to develop a required level of infrastructure base for the growth of the agriculture sector, it is essential that the government prepares an investment friendly environment for the private sector and for international investors to invest, particularly in the power and telecommunications infrastructures. The rural road sector suffers from increased fiduciary risks at the local (i.e. DDC, Municipal and VDC) level where the guidelines for development of rural roads in a systematic manner following agreed District Transport Master Plan and Rural Roads standards are not followed.
6.	**Credit, Insurance, Taxes**	Credit to agriculture and agribusiness is constrained by numerous factors including the low coverage of agricultural insurance and effective credit guarantee schemes. Taxes are not discriminatory against agriculture; however a lax revenue collection system prevents from ensuring adequate source to finance agricultural development.
7.	**Subsidies**	Subsidies on fertilizer and irrigation are ingrained in the being of the average Nepali farmer. The debate about subsidies is affected by the comparison with highly subsidized but inefficient Indian agriculture. Recent subsidy policies have reversed years of lack of subsidies adding to higher expectations in the future. The ADS will need to address subsidies keeping into account these expectations but also realistic assessment of what are the economic implications of subsidies, and alternative methods to achieve similar results.
8.	**Land**	Land use planning is urgently needed in order to put a halt to unsustainable practices and environmentally damaging use of land. The current legislative work on land ceilings might have implication for farm size and alternative institutional arrangement to overcome the limitations of small and fragmented land holdings. Farm size has important implications for the formulation of the agriculture development strategy. Rural/farm population could be roughly classified into three groups comprising 20 % of small commercial farmers (with 1 to 5 ha and above of land); 27 % of subsistence farmers (with 0.5 to 1 ha of land); and the landless and near landless (less than 0.50 ha) comprising about 53 % of the rural population. Similarly, the livestock herd size averages 5 livestock units per farm household. An effective agricultural strategy will directly benefit the small commercial farmers and could substantially raise the productivity of the subsistence farmers, whereas the impact on the landless and near landless will be mostly through employment effects. Subsistence farmers might require the formulation of a special extension program.
9.	**Food and Nutrition Security**	Food and nutrition security is a multidimensional concept that entails the aspect of food availability, food access, food use and utilization, and stability. There is a need to clarify to what extent food and nutrition security in Nepal requires achievement of foodgrains self sufficiency and to what extent nutritional security requires an emphasis on a more diversified agricultural production system with a larger role of animal and horticultural products than foodgrains. As urban markets and international food trade increase, food safety issues will become more important.
10.	**Institutions and Human Resources**	In spite of considerable rhetoric indicating agriculture as a priority sector for growth and poverty reduction in Nepal, credibility is eroded by (i) frequent changes in the leadership of agencies and organizations responsible for the agriculture sector; (ii) low budgetary support to the sector, both in terms of capital and recurrent expenditures; (iii) enormous gaps between policy formulation and implementation; and (iv) weak system for policy monitoring and

No.	Category	Issues
		evaluation. Moreover, institutional capacity to implement policies and programs is constrained by limited size and skills of human resources, insufficiently and inadequately trained staff, and lack of hardware and investment funds to carry out programs. Accountability and transparency in program implementation need considerable strengthening, including linking monitoring and evaluation systems to performance evaluation and incentives.
11.	**Climate Change and Natural Resource Management**	Available evidence on climate change in Nepal indicates increasing temperatures and different patterns of monsoon precipitations. The impact of climate change on agriculture in Nepal is currently being studied, but even the preliminary evidence suggests the need of introducing appropriate adaptation mechanisms to increase resilience of farmers to climate change. At the same time it is important to understand the feasibility of mitigation mechanisms including clean development mechanisms and disaster risk reduction that could be beneficial to farmers. The issue is how to ensure sustainable modernization of agriculture and commercialization while strengthening resilience to climate change.
12.	**Social and Geographic Inclusion**	Poverty, social, gender and geographic exclusion, and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepali society has led in the past to polarization and social conflict. The ADS will need to identify mechanisms that value diversity, eliminate or reduce polarization, and create cooperative arrangements for mutual benefits of the parties involved. This will need to be realistically formulated given the economic stage of development, the resources available, and the support of a leadership able to promote consensus around the strategy and its implementation. Budget allocations are often silent over how to enhance women's strategic positions through recognizing women as independent and autonomous farmers, ensuring women's access to means of production, enhancing their leadership competence and creating acceptance, and improving women's position in different structures of the government, non-government and private sectors.
13.	**Legal**	Although policy formulation in Nepal has addressed several dimensions relevant to agriculture sector development and, by and large, there is a general agreement that most policies are acceptable. The main problems arise in the implementation stage. One critical aspect explaining the weakness of policy implementation is the limited legislative effort made in ensuring that the legal aspects of the policy implementation are well thought out and clear. In order to address this weakness, the ADS will need to incorporate legal provisions and a legal framework. Some of the initial issues that require further review include food quality and safety, commerce and trade, land and water, and public enterprise reform.

143. The issues affecting the agriculture sector are numerous and complex. Three factors are needed to solve these issues: (i) a good plan and strategy; (ii) adequate resources; and (iii) credible policy commitment (see Figure 10).

Figure 10: Elements of a Successful Strategy

144. The key features of **a good plan and strategy** include:

- Relevance of the issues
- Clarity of the approach
- Evidence-based
- Based on extensive consultation with a broad range of stakeholders
- Paying attention to both social and geographic inclusion
- Paying attention to sustainability
- Keeping into account the likely structural changes the economy and society will go through over the next 20 years

145. **Adequate resources** required for the implementation of the ADS will be considerably higher than what is currently invested in the sector and also higher than what has been invested in the past. Resources to the agriculture sector have to be increased and be more predictable, so that programs can be formulated and provided with continuity. Public sector resources including development partner commitments should be identified in advance to ensure that especially the initial years of the ADS implementation are successful so that momentum is gained to accelerate growth of agriculture. In addition to public sector resources, adequate incentives have to be created for mobilization of private sector resources, including remittances, and investment in the agriculture sector.

146. **Credibility of policy commitment** derives from the capacity of the political forces in the country to overcome their differences and jointly embark on an ambitious long-term plan to develop the sector. This will require continuity of leadership and program implementation, monitoring and evaluation, and transparency of investment. This is perhaps the most crucial element of success of the ADS.

3 VISION OF THE ADS[39]

3.1 Future Trends affecting the Agriculture Sector in Nepal

147. The discussion of future trends in this chapter provides a context for the formulation of the vision of the agriculture sector in Nepal. A vision for Nepal is not an exercise in isolation of what happens in the rest of the world. A realistic and solid vision is anchored on an in depth understanding of the current situation and overall trends that affect Nepal in a regional and global context. It should also be noted that the formulation of the vision is the outcome of discussions with stakeholders in the regions and at the national level.

3.2 Agricultural Transformation

148. Over the 20-year period 2015-2035, one possible scenario is for GDP/capita of Nepal to increase substantially and Nepal moves towards middle income country status. This scenario is consistent with the potential of the country and given an improvement in policies and institutions that will result in accelerated growth. During this movement towards middle income country status, Nepal will go through the process of agricultural transformation, a process whereby the economic structure of a society changes from one based on agriculture to one based on industry and services. Four lessons from the process of agricultural transformation are relevant to the formulation of ADS's vision. The lessons can be summarized as follows.

a) Total Factor Productivity (TFP) growth is the main source of future agricultural growth. TFP requires not only land, labor and capital, but also such things as technology, innovation, efficiency, human resource capacity, and governance. TFP growth contributed between 40% and 70% of agricultural output growth in Asia over the last 50 years. In case of Nepalese agriculture, the TFP growth annually during 1995-2011 was 1.5%, which is 44% of the AGDP growth rate [40].
b) At early stage of development, agricultural growth is the main engine of poverty reduction because most of the poor are in rural areas. Lower inequality enhances the impact of growth on poverty reduction.
c) Increasing urbanization presents challenges that traditional food systems are not well prepared for. Integration of smallholder farmers with modern value chains is a feasible response to these urbanization challenges.
d) As the economy moves closer to middle income status, the development of the rural non-farm sector (including agri-food manufacturing, services, marketing and logistics), becomes increasingly important in closing the gap between rural and urban areas.

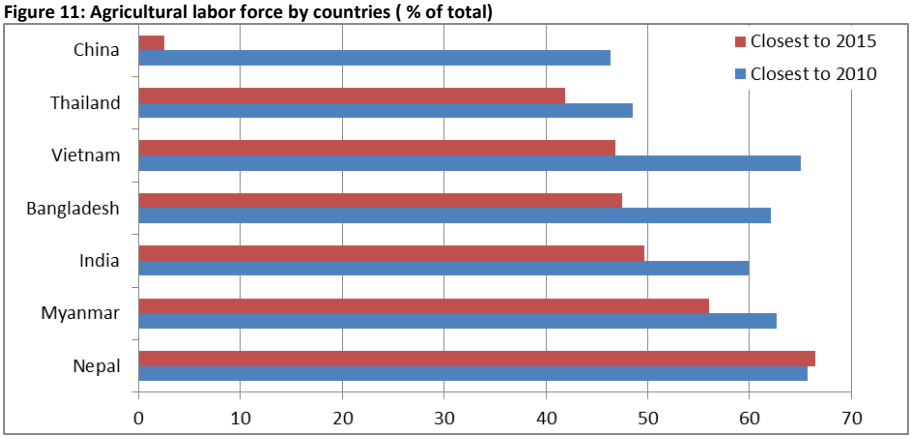
3.3 Agricultural Labor Force

149. An over-arching demographic and economic trend is the structural transformation of labor gradually moving from agriculture to secondary processing and manufacturing industries and tertiary services industries. The growth rate in agricultural labor force is declining, from 2.5% (1988-98) to 2.1% (1998-2008), and the forecast is 1.7% (2010-20) (FAO 2010). For example, Figure 11 shows that

[39] This chapter is based on the Background Report on Vision.
[40]Keith O. Fuglie, 2010, Total Factor Productivity in the Global Agricultural Economy: Evidence from FAO Data; and https://knoema.com/USDAIAP2015/usda-international-agricultural-productivity-2014?tsId=1148140

the agricultural labor force in Nepal is much higher than in a more diversified economy such as Bangladesh. Driving this trend are rapid population increase, urbanization, reduction in poverty, rising non-farm incomes and employment, new technologies, increasing access to information technology (mobile telephone ownership in Nepal is about 46% of the population), increasing competition for land and water for agriculture and non-agricultural use, globalization, rising costs of energy, and climate change.

Figure 11: Agricultural labor force by countries (% of total)



3.4 Source: WDI dataset, 2016; Raitzer et al. (2015), ADB for MyanmarUrbanization

150. An increasing urban population needs to be fed. For this population, food demand will be richer in protein, requiring more stringent quality standards, and be more convenient to prepare. Increasing urbanization implies more pressure on agricultural land in peri-urban areas. Food distribution systems appropriate for urban areas need improved marketing and distribution infrastructure. An increasing amount of food will be distributed via modern outlets and supermarkets. Agroindustry will need to develop in order to provide with enhanced features such as storability, convenience, improved packaging, and diversified products.

3.5 Change in Diet

151. Due to increasing income and urbanization, diets will be more diversified, richer in protein and micronutrients. More animal products and more processed foods will be consumed. Also, people will be more conscious of health issues (cholesterol, diabetes, allergies, etc.) related to food and food safety.

3.6 Globalization and Trade

152. Increase in cross-border trade will require Nepal to have an adequate capacity and network of agreements in place with major trading partners for food safety and quality standards, phytosanitary and quarantine, double tax agreements, transit, and harmonized trade and commerce legislation (e.g. anti-dumping, labeling, trade mark protection). It will also require Nepal's agri-food industries to become competitive with more countries.

3.7 Outmigration

153. In common with other countries, Nepal's rural youth are increasingly choosing employment in areas other than agriculture. Youth migration is leaving women, children, and old people in the villages. Labor shortage, noted by many regional consultations, suggests need for increased mechanization. Outmigration might also accelerate the process of increasing farm size, as long as there is an effective land use management regulatory system. As the agriculture sector transforms to a more commercial and competitive industry, it will attract more investment and support more semi-skilled, higher-paid employment.

3.8 Green Technology and Low Carbon Emissions

154. There will be global pressure for countries to implement green technologies (e.g. solar power) and reduce carbon emissions (e.g. Rs. 50/ton coal tax in India). At the 2012 'Rio+20' UN Conference of Sustainable Development and subsequently in the 2015 UN General Assembly , Nepal and other member nations agreed to establish Sustainable Development Goals which based on green economy principles. To facilitate this, new multilateral financing mechanisms are emerging such as the Climate Change Fund, and increased provision for the Global Environment Fund, as well as carbon trading on international stock markets in response to voluntary and government-mandated emissions certification schemes.

3.9 Diversification

155. Developing a more commercial and competitive agriculture sector is essential to face the trends that have direct impacts on the food and agriculture sector. Rising incomes are changing food demand from cereals towards more protein, fruit, vegetables and processed foods. In the South Asia region, per capita consumption of rice declined from 20% to 15% of consumer food spending (1980-2008), while 85% of consumer food spending is on vegetables, meat, dairy and fish (Chen, 2011). Following this trend, farmers get about four times the income per ha from high value products than from rice.

3.10 Distribution Systems

156. Markets are increasingly open and will be increasingly homogenized toward international tastes and requirements for levels of quality, packaging, safety, and even process attributes such as socially or environmentally friendly methods. New distribution channels, dominated by larger firms including supermarket retailers, will impose high performance demands on their value chains. Food production, distribution and marketing chains are changing with improving infrastructure, communications, vertical business structures, integration into the world market, and the rapid rise of supermarkets. Some 80% of the consumer price of food is formed in the post-farm value chain, yet the policy is very focused on farm productivity. In the ASEAN country group, 75% of the food economy is in urban areas, in wholesale, post-harvest logistics, processing and food retail, and increases in efficiency post-farm therefore have strong impact on competitiveness (Chen 2011). The supermarket revolution is advancing in India and starting in Nepal. In China the top 47 food retail chains turned over USD 13 billion in 2001, rising extremely rapidly to USD 92 billion by 2009.

3.11 Quality and Safety

157. In the regional and global context, agricultural quality and safety systems are based on standards of best practice operating procedures, internal control systems and product traceability. They require strong government regulatory systems with sufficient capacity for monitoring,

regulation and enforcement, supported by non-government industry-based institutions to provide training, certification, auditing and analytical laboratory services. The regulatory capacity must encompass the whole food chain, from rigorous assessment and registration of agricultural inputs (such as pesticides, veterinary medicines and biotechnology products) and livestock feeds to food processing additives. The tragic 2008 "melamine in milk" episode shocked Asia. The fact that melamine was not previously monitored as it was not considered a potential agricultural input highlighted the need for dynamic and rigorous food safety system. The most frequent food safety events are due to bacterial contamination such as the deaths in the USA caused by *E. coli* in tomatoes in 2007 and bean sprouts in Germany in 2011. In Nepal, the average fatality rate associated with food epidemiology and communicable disease outbreaks has been 3% in 2014/15 (DoH AR 2015) In all cases, a system to trace the source of contaminated products was essential to rapid and effective response.

3.12 Cost of Energy

158. Rising costs of energy will drive up costs of fertilizers, irrigation, mechanization and thus food. In this context, profitable farming systems and their genetic materials need to be highly efficient, not necessarily relying on high-fertilizer and water input systems such as hybrid wet rice. Aerobic rice systems are emerging as more efficient and provide better yield in marginal conditions and under climate change. Increasing urbanization and agro-industry development results in large-scale concentrated waste that continues to be costly and polluting, and in response many countries are using this waste to manufacture bio-fertilizer.

3.13 Climate Change, Natural Disaster and Global Crises Management

159. Climate change, input and output market price fluctuations, trans-boundary disease and natural disasters have major local and regional impacts on agriculture. India, for example, has developed agricultural insurance and disaster response mechanisms for primary (crop failures) and to some extent secondary (livestock deaths) consequences of climate variability. Risks in commercial agriculture may be mitigated by response mechanisms that include catastrophe protection insurance and the protection of farmers under bankruptcy legislation.

3.14 Degradation of natural resources

160. Degradation of so-called renewable resources including agricultural land and water presents another set of challenges. Improving the land tenure system, markets for water rights, land use zoning, and regulatory capacity to ensure sustainable land and water resource use management are some of the policy and institutional mechanisms that have proven effective.

3.15 Fiscal discipline

161. Pressure for increased integrity of the tax system, including the administration of the taxation of agriculture will be an increasingly feature of more modern agricultural systems.

3.16 Vision Statement

162. The vision statement reported in this chapter is the outcome of a number of consultations at the regional and national level. The formulation below is based on (i) the National Workshop held in Kathmandu on 30 November 2011; and (ii) subsequent consultations with farmer organizations

during 2012 and 2013. The statement incorporates several elements that address most of the concerns and aspirations of Nepali as they relate to the food and agriculture sector.

A self-reliant, sustainable, competitive, and inclusive agriculture sector that drives economic growth, and contributes to improved livelihoods and food and nutrition security leading to food sovereignty

3.17 Key Elements of the Vision

3.17.1 Self-reliance

163. Self-reliance relates to the capacity of the country to produce sufficient food to feed its own population. Currently, not only the food and agricultural trade balance of Nepal is in deficit, but also its major food staples are in deficit, including rice, wheat, and maize. Self-reliance is based on the aspiration that Nepal should not be dependent on imports for its food staples. This is an achievable target since even moderate increases in cereal productivity in Nepal can result in foodgrains self-sufficiency. The concept does not imply that for each and every commodity Nepal should be self-sufficient. Nepal should be self-reliant overall for food and agricultural products; for several individual food and agricultural products Nepal might continue to import based on its comparative advantage.

3.17.2 Sustainability

164. Sustainable agriculture includes environmental, economic, and social dimensions. With good practices, agriculture could be environmentally sustainable and contribute to biodiversity. Intercropping systems, conservation tillage, organic farming and agroforestry are some examples. Efficient water use management including non-conventional irrigation, treatment of livestock and agroprocessing wastes in biogas and biomass clean technologies, and integrated plant and soil nutrient management contribute to an environmentally sustainable agriculture.

165. Sustainable modernization of agriculture must strengthen resilience to climate change, global price fluctuations, availability of labor, and production risks associated with major outbreaks of pests and diseases. Rising economic costs will have to be counterbalanced by improved productivity, bigger farm size, value adding, and outsourcing of some operations to specialized companies and business service providers. Research and technology transfer programs must expand to prepare for the future. In the longer term, consolidation of farms will be unavoidable, but before that occurs, the majority of smallholder farmers have to make a livelihood from their land.

166. Women represent the majority of agricultural labor force, and social sustainability depends on women gaining the power and capacity to control decisions about use of resources. Budget allocations need to recognize women as independent farmers, ensure women's access to means of production, enhance their leadership, and improving women's position in different structures of the government, non-government and private sectors. Marginalized groups often can no longer exercise traditional stewardship of natural resources, resulting in unsustainable impacts on agriculture and biodiversity. Addressing the constraints of these groups will contribute to social sustainability of the programs adopted in the ADS. ADS strongly recommends for the equal wage for male and female labors for the same work.

3.17.3 Competitiveness

167. Competitiveness of agricultural products from Nepal is low and declining. Constraints include poor infrastructure, weak governance, weak quality and safety control, low technology, limited capacity and human resources, an overvalued exchange rate, difficulty to access credit and to do business. Most exported agricultural products are in raw form and value addition is done in destination markets. Competitiveness implies a production and distribution system oriented towards the market and meeting consumers demand effectively by providing higher value. Competitive products are not necessarily cheaper products, but are those that meet the preferences and budgets of the consumers, using efficient value chains. Competitiveness is based on comparative advantage, productivity and profitability, but goes one step further: rather than focusing only on cheaper costs, it looks at higher value added, quality, and safety. Improvement in competitiveness of Nepal agriculture could redress the large food and agriculture trade deficit.

3.17.4 Inclusion

168. Poverty, social and geographic exclusion, women's inequality and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepal society has led in the past to polarization and social conflict. The benefits of agricultural development should be shared by different groups, including the farmers, the land owners, the farm workers, and the enterprises. The majority of farmers (about 81%) own less than 1 hectare and the livestock herd size average 3 to 7 livestock units. An effective agricultural strategy will directly benefit the small commercial farmers and could substantially raise the productivity of the subsistence farmers, and provide employment for the landless. The vision indicates that marginal groups should be included in programs and share of benefits of agriculture. The ADS needs realistic and affordable mechanisms that reduce polarization, and needs leadership for its implementation.

3.17.5 Economic Growth

169. Consistent with the insights of agricultural transformation, a more dynamic agriculture is accompanied by higher productivity growth. Growth of agricultural-based activities will have rural non-farm effects and imply increased employment in non-farm employment. This will typically include agroprocessing, storage, trade, food service, production services, and agri-tourism. Higher economic growth of agriculture sector will in turn contribute to higher GDP. Combined with a reduced population growth rate and reduced growth of agricultural labor, higher GDP per capita in agriculture will reduce poverty and improve living standards in rural areas.

3.17.6 Improved Livelihood[41]

170. A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. The key elements link work and employment with poverty reduction and well-being, and link the resilience of livelihoods with the wider economic, social and environmental resource-base on which they depend.

3.17.7 Food and Nutrition Security

171. The definition of food and nutrition security proposed by FAO in 1996 entails the aspect of food availability, food access, food use and utilization, and stability, and is also related to the

[41]This section is adapted from Ian Scones 1998, Sustainable Rural Livelihoods. A Framework for Analysis, IDS Working Paper 72.

dimensions of inclusion and livelihoods of the vision statement. Agriculture is not the only determinant of food security, but it is a major one. The vision for the agriculture sector in Nepal implies that growth is reflected not only in additional income but in the availability, access, and utilization of more nutritious food, particularly of those who are currently food insecure. Food and nutritional security may entail a more diversified agricultural production system with a larger role of animal and horticultural products than foodgrains. As urban markets and international food trade increase, food safety issues will also become more important aspects of food and nutrition security. The ADS vision is aligned with the Multi-Sectoral Nutritional Plan (MSNP) and the Food and Nutrition Security Plan of Action (FNSP). FNSP, as approved by MOAD, is an integral part of ADS to implement Food and Nutrition Security programs which complement MSNP too.

3.18 Targets and Indicators

172. The targets are an indication of what is intended and possible to be achieved as results of the ADS being implemented. Targets are listed for the short term (5 years), medium term (10 years), and long term (20 years). Each target is accompanied by indicators that allow measuring of progress (or lack thereof) towards the target. An explanation of the assumptions used in each target (or how each target has been constructed) is included in Table 18. A TA would be used to update data for base year of ADS implementation (2015) and subsequent targets accordingly.

Table 18 Preliminary Indicators and Targets for ADS Vision

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
Self-reliant	Self-sufficiency in foodgrains	Currently 16. % trade deficit in foodgrains	0% trade deficit in foodgrains	0-5% trade surplus in foodgrains	0-5% trade surplus in foodgrains	Cereal yield growth rises from 1.5% annually (2000/01-2015/16) to over 2%/yr. Population growth rate no more than 1.4% (2015) .	TEPC, CBS MOAD, Dept of Customs
Sustainable	Year-round irrigation coverage	25.2%	35 %	60%	80%	Based on historic rates of construction, O&M, and within potential irrigable area: - Surface irrigation 1000ha/yr - NCI 4000 ha/yr - Tubewells 150,000 ha	NPC, MOI, CBS, MOAD, MOF Economic Survey
	Soil organic matter	Soil fertility at 2.9 % organic matter	Soil fertility maintained at 3.5 % organic matter	Soil fertility maintained at 4% organic matter	Soil fertility maintained at 4% organic matter	- Promotion of integrated soil and plant nutrient management - Improvement in agricultural practices for cultivation, crop residue use, integrated crop nutrition. - No increase in deforestation	MOAD
	Ha degraded land	3.72 million ha (28% of land)	2.88 million ha (reduction of 10%)	2.56 million ha (reduction of 20%)	1.6 million ha (reduction of 50%)	- 10% growth in area under CF, LF, PF - rehabilitation/ reforestation - 2000-2015 poverty reduction rate continues. - Land conservation and land rehabilitation programs - Increased electricity coverage (reduced wood fuel demand).	MOEST, MOFSC, CBS, MOAD
	Forest cover	44.7%	44.7%	44.7%	44.7%	- No net change - Effective land use management regulation enforced.	MOFSC
	Agricultural land productivity (AGDP/ha)	$ 3,278	$4,184	$ 5,339	$8,697	5%/yr of AGDP increase due to: - expanded irrigation - improved practices - improved use of inputs - expanded rural infrastructure - No Increase in cultivated land	CBS, MOF Economic Survey
	Agribusiness GDP as share of GDP	8%	9% %	11%	16%	11.8%/yr average increased value of output due to: - improved business enabling environment - growth in agribusiness investment	MOF Economic Survey
Competitive	Agricultural trade balance	$ 1,123million trade deficit	Reduce food and agriculture trade deficit by 4.5% ($1,073 million)	Reduce food and agriculture trade deficit by 21.5% ($ 882 million)	Achieve Food and agricultural trade surplus of $508 million	12.3% growth/yr of exports and 2.1%/yr growth of imports due to: - increase production of high value crops - cereal yield growth - increased value addition - improved rural infrastructure - growth in agribusiness investment	TEPC

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
	Agricultural Exports	$ 225 million	$ 456 million	$ 814million	$ 2,598million	12.3%/yr export growth	TEPC
Inclusive	Percent of farm land ownership by women or as joint ownership	16.%	20%	30%	50%	- 20%/yr incremental registration on land title - Awareness programs on gender and land issues	CBS NSCA
	Percent of farmers reched by agriculture programs	DOA 18.2% DOLS 6.6%	DOA 22% DOLS 12%	22% DOA 26% DOLS 18 %	DOA 32% DOLS 26%	5%/yr growth in outreach: - increased rural infrastructure - expansion of ICT services - 5%/yr growth in agribusiness services	MOAD, CBS, DoA/Dir of Extn, and DoLS
Growth	Average annual growth of AGDP	2.23% (*)	4%	5%	6%	- increased productivity growth - increased investment - increased rural infrastructure	MOF Economic Survey, CBS
Livelihood	AGDP/ Agricultural labor	$ 835	$ 1,029	$ 1,268	$ 1,926	0.7% growth in agricultural labor due to: - movement towards other sectors - outmigration - reduced population growth rate 5%/yr AGDP growth due to: - increased productivity, investment, infrastructure - improved practices	MOF Economic Survey, CBS
	Poverty in Rural Areas(^)	24.3%	19%	15%	9%	-4.8% reduction rate/yr against 2003/04 – 2013/14 rate of reduction (- 3.4%)	NLSS,AHSs
Food and Nutrition Security	Food Poverty	27.6%	19 %	13%	6%	-7.5% reduction rate/yr against 2000 – 2015 rate of reduction (- 4.8%)	NLSS, AHSs, HBS
	- % stunting (height for age) among under 5 children - Underweight (weight for age) among under 5 children - Wasting (weight for height) among under 5 children - Women in reproductive age with chronic energy deficiency (measured as low BMI)	37.4% stunting; 30.1% underweight; 11.3% wasting; 18.1% women with low BMI	29% stunting; 20% underweight; 5% wasting; 15% women with low BMI	20% stunting; 13% underweight; 2% wasting; 13% women with low BMI	8% stunting; 5% underweight; 1% wasting; 5% women with low BMI	- nutrition education - health services outreach expansion - poverty reduction	NDHS, MICS

(*): Three Year Average Ending (TYAE) 2015/16;
(^) Data from Household Budget Survey 2014/15, NLSS and Annual Household Survey correlated with agri-GDP

Sources for 2010 and 2015 scenario

Agricultural trade balance and Agricultural Exports: TEPC, Nepal Foreign Trade Statistics 1995/96 to 2014/15, and Department of Customs Foreign Trade Statistics 2015/16.
Year-round irrigation coverage: Department of Irrigation, DOI(2016); National Planning Commission, NPC (2009), CBS NSCA (2011/12); Ministry of Agriculture Development, MOAD (2014/15); MOF Economic Survey (2016)
Soil organic matter: Soil Management Directorate, Department of Agriculture (2014/15 & 2015/16)
Ha degraded land: Ministry of Environment Science and Technology, MOEST (2005); Department of Forest Research and Survey, DFRS (1999 & 2016); Department of Forest, DOF (1999), Environmental Statistics of Nepal (2015); Department of Agriculture (2014/15)
Forest cover: Department of Forest Research and Survey, DFRS (2016); Approach Paper 14th Plan
Agricultural land productivity (AGDP/ha): CBS NSCA (2011/12); MOF Economic Survey (2016).
Agribusiness Share of GDP: MOF Economic Survey, (2016), .
Percent of land ownership by women/ joint ownership: CBS NSCA (2091/92); NSCA (2001/02) & NSCA (2011/12)
Percent of farmers' reached by agriculture programs: Directorate of Extension, Department of Agriculture (2013/14), and Dept of Livestock Services
Average annual growth of AGDP: MOF Economic Survey (2016) and CBS National Account
AGDP/ Agricultural labor: MOF Economic Survey (2016); CBS Population Monograph Vol. III, (2014)
Poverty in Rural Areas: CBS NLSS (1995/96, 2003/04 & 2010/11); CBS Annual Household Survey (2012/13 & 2013/14)
Self-sufficiency in food grains: Statistical Information of Nepalese Agriculture, MOAD (2014/15); MOF Economic Survey (2016); TEPC and Dept of Customs Nepal Foreign Trade Statistics (2010/11 to 2015/16).
Stunting of children 0-60 months: Nepal and Health Demographic Survey (2001, 2006 & 2011); CBS NLSS (2010/11); CBS Multiple Indicator Cluster Survey (2014)
Proportion of food insecure: CBS Nepal Living Standard Survey (2010/11); CBS Annual Household Survey (2012/13 & 2013/14); NRB Household Budget Survey (2014/15)

Note: National Peasants Coalition questioned on the reliability of the data regarding land degradation and has submitted its view that the current area under degraded land should not be more than 1 million hectare.

4 STRATEGIC FRAMEWORK

4.1 Implications of Agricultural Transformation for ADS

173. The ADS will guide the agriculture sector of Nepal over the next 20 years. Over the course of this period, the structure of the agriculture sector in Nepal is expected to change considerably with agribusiness to grow faster than agriculture. Strong linkages between agriculture and other sectors in the economy will be critical to the reduction of poverty particularly in rural areas where the development of non-farm activities based on agriculture will be fundamental for the growth of an overall robust economy, a more balanced rural economy, and employment generation.

174. In this context, it is worth emphasizing again that the ADS looks at the agriculture sector in its complexity, and encompasses not only the production sectors (crops, livestock, fisheries, forestry) but also the processing sector, trade and other services (storage, transportation and logistics, finance, marketing, research, extension).

175. The strategy is formulated by taking into account the conceptual framework of agricultural transformation of Nepal from a society primarily based on agriculture to one that derives most of its income from services and industry. This process will have profound implications for the ways the Nepali population will shape their food production and distribution systems, the development of rural areas including the rural non-farm sector, labor and land productivity, trade balance, employment and outmigration of the youth, the role of women in agriculture, and management of natural resources in the context of increasingly more severe climate change events. The ADS will ensure that the process of agricultural transformation is accelerated and molded according to the aspirations and constraints of Nepali society.

176. In this process of transformation, several things take place at the same time[42]. The share of agriculture in GDP and labor decline, but at the same time agricultural productivity and agricultural GDP increase. So, in spite of being less as a share of total GDP, agricultural GDP is still growing bigger.

177. The implications of the lessons from the agricultural transformation experience for the ADS can be summarized as follows[43]:

(i) Accelerate investment in Science and Technology. Invest in the Knowledge Triangle – research, education, and extension (REE).
(ii) Ensure broad-based and inclusive agricultural growth. Invest in programs to moderate social and geographic inequalities.
(iii) Integrate smallholder farmers with competitive value chains that are able to meet the more demanding requirements of growing urban population in Nepal and abroad.
(iv) Promote rural infrastructure and rural agro-enterprises that energize the economic texture of rural Nepal.

4.2 Agricultural Growth and Poverty Reduction

178. In resource-poor low income countries, a given rate of GDP growth due to agricultural growth reduces poverty 5 times more than does an identical dose of GDP growth due to non-

[42]Timmer 2007.
[43] Based on Goletti 2011

agricultural growth[44] and investment in agricultural capital stock has been found to reduce hunger[45]. Agricultural investment is crucial for agricultural growth. A scenario of "business as usual" like the relatively low growth of agriculture in Nepal at 3% will have repercussion on the time needed to reduce poverty. If the low growth of the past continues, it will take more than 20 years to halve the current poverty rate of 25% (see Figure 12). With an accelerated growth of 5%, the time needed to halve poverty will be less than 10 years. ADS will promote increased investment in the agriculture sector leading to faster agricultural growth and faster poverty reduction.

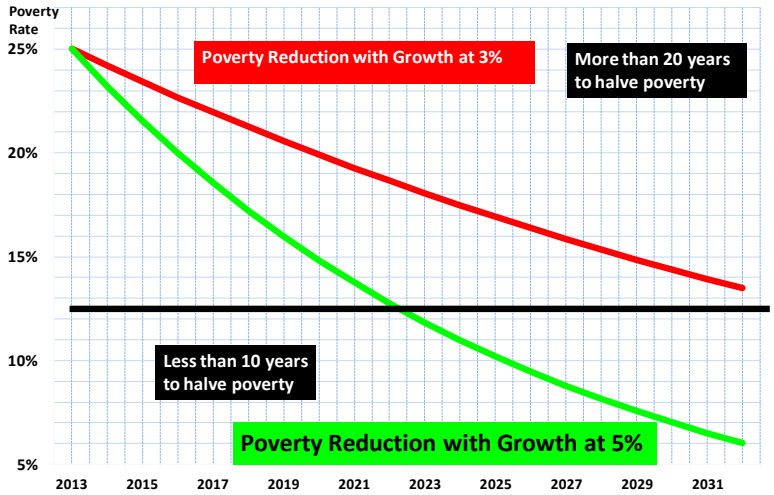


Figure 12: Growth and Poverty Reduction[46]

[44] Christiansen, L., Demery, L., and Kuhl, J. 2010. The evolving role of agriculture in poverty reduction: an empirical perspective, Journal of Developing Economies, 96:239-254.
[45]FAO 2012.The State of Food and Agriculture.
[46]Based on growth poverty elasticity of -2.

4.3 The ADS Framework: Impacts, Outcomes, Outputs, Activities

In order to achieve the vision the ADS will accelerate agriculture sector growth through four strategic components including governance, productivity, profitable commercialization, and competitiveness while promoting inclusiveness (both social and geographic), sustainability (both natural resources and economic), development of private sector and cooperative sector, and connectivity to market infrastructure (e.g. agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (e.g. rural electrification, renewable and alternative energy sources). The acceleration of inclusive, sustainable, multi-sector, and connectivity-based growth is expected to result in increased food and nutrition security, poverty reduction, agricultural trade competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights. Figure 13 provides an illustration of the strategic framework of the ADS.

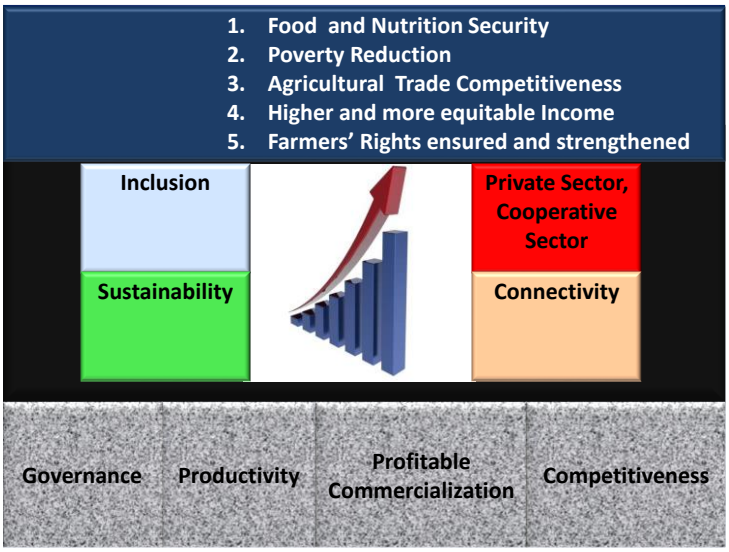


Figure 13: Strategic Framework of the Agriculture Development Strategy

179. The ADS Framework consists of a logical sequence of **impacts**, **outcomes**, **outputs, inputs**, and **activities**. Together this sequence is expected to contribute to the achievement of the Vision of the ADS presented in the previous chapter.

4.4 Impacts of the ADS

180. The overall impacts of the ADS consist of the five dimensions of increased food and nutrition security, poverty reduction, competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights. Indicators of impacts are reported in Table 19.

Table 19: Indicators of ADS Impact

Impacts	Indicators
Food and Nutrition Security	• Stunting (height for age) among under 5 children • Underweight (weight for age) among under 5 children • Wasting (weight for height) among under 5 children • Women in reproductive age with chronic energy deficiency (measured as low BMI)
Poverty Reduction	• Rural poverty share
Competitiveness	• Agricultural Trade Balance
Higher and more Equitable Income	• Income per Capita • Gini coefficient
Farmers' rights Ensured and Strengthened	• Legislation on Rights to Food and Food Sovereignty • Farmers' Representatives in the key ADS Committees • Legislation on Farmers' Rights (Farmers' Commission)

4.4.1 Food and Nutrition Security

181. All outcomes, outputs, and activities of the ADS will contribute to improve food and nutrition security either directly or indirectly. At the same time, the ADS will address the food and nutrition security needs of the most disadvantaged rural population including lactating and pregnant women, janajatis, dalits, and groups in disadvantaged regions such as the Karnali. One output under the Governance Component is entirely dedicated to the improved food and nutrition security of disadvantaged groups. That output will be organized as a national flagship program (FANUSEP) that includes subprograms on Nepal Agricultural and Food Security Project (NAFSP), Food and Nutrition Security Plan of Action (FNSP), and a new comprehensive program on food and nutrition security that will be developed and started over the course of the first 5-year period of the ADS (see section 5.2.9). ADS interventions on food and nutrition security will be aligned with the recently approved MSNP.

182. Component 2 of the ADS on Productivity has an impact on food and nutrition security by (i) increasing the volume of food production in Nepal in a sustainable way through higher productivity and sustainable use of natural resources; and (ii) reducing vulnerability of farmers through improved food/feed/seed reserves, improved preparedness and response to emergencies, and climate smart agricultural practices.

183. Component 3 of the ADS on Profitable Commercialization has an impact on food and nutrition security by (i) increasing income of farmers; (ii) improving access to markets; and (iii) reducing postharvest losses.

184. Component 4 of the ADS on Competitiveness has an impact on food and nutrition security by (i) improving food safety; (ii) relying upon trade for a more diversified diet; (iii) accelerating the growth of micro, small, and medium agroenterprises including those headed by women, youth, disadvantaged groups and individuals based in disadvantaged regions.

4.4.2 Poverty Reduction

185. As highlighted by the ADS framework illustrated in Figure 13, accelerated growth is crucial to the ADS. Accelerated growth of agriculture will be achieved through improved governance, increased productivity, profitable commercialization, and enhanced competitiveness. Section 4.2 has highlighted that agricultural growth is the most powerful mechanism for poverty reduction when an economy is at a low development stage. The ADS builds on this main finding and promotes additional measures to ensure that poverty is reduced

through targeting the disadvantaged and poor households, subsistence farmers and landless rural households; adopting a markets for the poor (M4P) approach in the commercialization of prioritized value chains; and promoting micro and small agroenterprises, including those from disadvantaged areas.

4.4.3 Agricultural Trade Surplus

186. Nepal agriculture could be an important source of foreign exchange. The ADS promotes self-sufficiency in foodgrains and import substitution in a number of commodities where the country has a potential for growth. More importantly, Nepal has comparative advantage in a number of agricultural commodities and, with appropriate policies and investments the country, could become competitive and a net agricultural exporter of high value products.

4.4.4 Higher and More Equitable Income of Rural Households

187. The ADS aims at increasing prosperity of farmers and agroentrepreneurs through higher incomes, improved livelihoods, and food and nutrition security. The discussion of the relation between poverty and growth in section 4.2 has highlighted the importance of income distribution on poverty reduction. A more unequal income distribution will lower the impact of growth on poverty reduction. The ADS promotes inclusion of disadvantaged groups and regions and an approach to value chain development based on Markets for the Poor that emphasizes the need of more equal benefits distribution along the value chain. Similarly, the ADS promotes the growth of agroenteprises led by traditionally excluded groups such as women, youth, and other disadvantaged groups such as the Dalits and the Janajatis.

4.4.5 Strengthened Farmers' Rights

188. The ADS provides institutional mechanisms to ensure farmers participation in the planning, decision making, implementation, and monitoring of the strategy. In particular, the ADS ensures that farmers' representatives are part of the leading coordination mechanisms of the ADS at the center and local level; they are part of the Steering Committee of the ADS Implementation Committee; they are in the board of NARC; they are in the board of 3,157 VDC-based Community Agricultural Extension Service Centers (CAESC); they are in the board of Commercial Agricultural Alliances and Value Chain Development Alliances; they are consulted when formulating policies for the agriculture sector; they are consulted when undertaking monitoring of the sector; and they are members of the Nutrition and Food Security Networks at the District level. By having their representatives in all these institutions, farmers will be able to ensure and strengthen their rights in the ADS.

189. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistently with the principles of the Constitution of Nepal. Specific initiatives to deepen the understanding of farmers' rights, promoting these rights, monitoring them, and protect them will be formulated as part of the activities under the Governance component of the ADS. Likewise, the Government of Nepal on the leadership of Ministry of Agricultural Development will establish the mechanism for providing minimum support price to the major agricultural products.

190. The ADS also promotes the establishment of a high level fully authorized and permanent type of Farmers' Commission to help advance farmers' right. The specific TOR,

composition, and regulation of the Farmers' Commission will be formulated in the early stages of ADS implementation.

4.5 The Outcomes and Outputs of the ADS

191. The ADS has four main outcomes:

- Outcome 1 - Improved governance
- Outcome 2 - Higher productivity
- Outcome 3 - Profitable commercialization
- Outcome 4 - Increased competitiveness

192. Selected targets for each outcome of the strategy are presented in **Table 20**.

Table 20: Targets for the Strategic Components of the ADS

Outcome	Indicator	Situation 2010	Situation 2015	Target
Governance	Agricultural Growth	3% average annual growth	2.23(*)	5% average annual growth
Productivity	Land productivity	$1,804/ha	$3,278 /ha	$ 8,697 /ha
	Labor productivity	$794/agricultural labor	$835 /agriculture labor	$ 1,926 /agricultural labor
Commercialization	Marketed surplus	Less than 50% of agricultural production	Less than 50% of agricultural production	More than 80% of agricultural production
	Agribusiness GDP	10% of GDP	8% of GDP	16% % of Agricultural GDP
Competitiveness	Agrifood export	$248 million	$255 million	$2,598 million

(*): Three Year Average Ending (TYAE) 2015/16 to account for high fluctuations due to the mega-earthquake 2015, economic blockade, and persistently poor rain fall ;

4.5.1 Improved Governance

193. Governance in the ADS refers to[47] "the capacity of government to design, formulate and implement policies and discharge functions." In the absence of such capacity the ADS will not be implemented successfully. Key elements of governance include[48]: accountability, participation, predictability, and transparency.

194. In spite of frequent pronouncements in support of the agriculture sector, policies to support the sector have either not been formulated or have not been implemented. Compounding the problem are the frequent changes in tenure of the key leaders for policy, program, and project implementation and also issues of consistency of policy itself. The result has been a loss of credibility in policy that is responsible in part for the failure of previous programs. In order to avoid this situation, the ADS sets clear targets for the outputs of improved credibility of policy commitment and will monitor appropriately. The ADS also recognizes the complexity of the agriculture sector requiring coordination and effective planning among different agencies, different levels (central, provincial and local), and different stakeholders (government, civil society, development partners). Effective coordination and planning will

[47] World Bank 1992, "Governance and Development", the World Bank
[48] ADB 1995, "Governance: Sound Development Management", Asian Development Bank, October 1995

ensure key outputs to achieve the governance outcome. An implementation support unit will facilitate various institutions to implement the ADS. At the same time, the inclusion aspects of the ADS (gender, disadvantaged groups, geographically disadvantaged) will be taken into account through appropriate mechanism that also ensure participation and accountability in the planning, implementation, and monitoring of the ADS. Capacity of human resources both within the government and selected organizations in civil society (e.g. farmer organizations and cooperative organizations) will contribute to the overall strengthening of the governance of the ADS.

195. Without credible programs to alleviate the food and nutrition security conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. One of the overall goals of the ADS is to improve food and nutrition security of its population. This is a long term goal towards which all the components of the ADS contribute. However, in the short term the test of governance of the ADS is the capacity of the government to meet the most urgent needs of the most disadvantaged groups. In order to respond to this governance test, a national flagship program on food and nutrition security has been included in the ADS under the governance component.

196. The Governance component is perhaps the most crucial one in order to achieve the vision of the ADS. Its effective implementation requires an improvement management based on performance and results. Measures to promote a system of result-based management will be piloted within this component.

197. The overall outcome of improved governance in the ADS is achieved through 10 outputs as follows:

Table 21: Outputs for Outcome 1 on Improved Governance

No.	Area	Output	Description
1.1	**Policy Credibility**	Credibility of policy commitment	Credible and consistent policy and greater continuity in the program leadership and implementation of programs and projects consistently with promotion of farmers' rights.
1.2	**Coordination**	Improved coordination among institutions involved in the ADS implementation	Strengthen the capacity of existing coordination institutions and establish new mechanisms within the existing coordination institutions (such as NPC) to address emerging needs to coordinate government agencies programs and projects with cooperative sector, private sector, farmer organizations, NGOs, and development partners.
1.3	**Planning**	Integrated planning	Assign to NPC the responsibility to oversee the implementation of multi-sector plans and policies, including the assurance that policies and plans are adequately budgeted.
1.4	**Implementation Support**	Effective implementation support	Establish an ADS Implementation Support Unit (Policy and International Cooperation Coordination Division) under MOAD to facilitate the implementation of the ADS through analytical services, monitoring and evaluation, and technical assistance.
1.5	**Gender Equality and Social and Geographic Inclusion**	Mechanisms established for gender equality and social and geographic inclusion in the ADS	Establish a comprehensive set of mechanisms at the policy, planning, and implementation levels to assure gender equity, social inclusion, and geographical inclusion in the ADS through capacity

			building of relevant institutions at the central and local level.
1.6	**Monitoring and Evaluation**	Timely and effective monitoring and evaluation of the ADS	Support various government units with capacity building and resources in order for them to carry out monitoring and evaluation on a timely and professional manner.
1.7	**Participation and Accountability**	Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS	Ensure that civil society including farmer organizations, cooperatives organizations, and trade/industry organizations are engaged in the ADS, have access to information, and provide comments and recommendations throughout the process of planning, implementation, and monitoring of the ADS.
1.8	**HRD and Capacity Building**	Enhanced capacity of key institutions involved in ADS coordination and implementation	Focused plan of capacity building and human resource development of targeted institutions to improve ADS coordination and implementation.
1.9	**Food and Nutrition Security**	Improved food and nutrition security of the most disadvantaged groups	Set of measures targeted to the most disadvantaged groups (socially and geographically) who are food and nutritionally insecure.
1.10	**Performance-based Management System**	Designed and piloted a system to reward good performance	Establish guidelines and standard operating procedures to promote and implement a system of results and performance based management.

4.5.2 Higher Productivity

198. Improved productivity of land and labor is the cornerstone of the ADS. Agricultural productivity requires the adoption of appropriate technologies and know-how to increase efficiency and sustainability of agricultural production consistently with market demand. The measures to raise agricultural productivity include those related to (i) effective agricultural research and extension; (ii) efficient use of agricultural inputs; (iii) efficient and sustainable practices and use of natural resources (land, water, soils, and forests); and (iv) increased resilience to climate change and disasters.

199. In the ADS, the government sector will be key leading actor, among other actors including private sector, cooperative sector, NGOs, leading farmers, and farmer field schools involved in the generation and dissemination of technology. The government sector however has a key role in coordinating the efforts of other actors, facilitating implementation of policies and plans, monitoring performance, and enforcing regulations.

200. The ADS recognizes that already a number of actors are involved in agricultural extension and over time their presence will become even more important. Rather than advocating a massive increase of human resources in the public extension service, the ADS promotes capacity building of existing government human resources and the broadening their role from delivery of extension services to both delivery and overall facilitator of agricultural extension services. This role change will be accompanied by a greater emphasis on the delivery at the VDC level, where Community Agricultural Extension Service Centers (CAESC) will be established and the technicians for the agriculture, livestock and agriculture information and communication will be recruited in the CAESC.

201. The ADS also recognizes the critical importance that farmers' access and control of the means of production – primarily land – has for the success of the strategy. Critical land issues such as tenancy, fragmentation, degradation, land use planning need to be resolved over the course of the ADS and their resolution will require the participation of the farmers' organizations, cooperatives, and private sector in order to find equitable and efficient mechanisms for enhancing land productivity. Land productivity increases should be reflected in increased benefits for the farmers and the livelihoods of the rural households. Moreover, given the dominance of smallholder farmers in the agrarian structure of Nepal, promotion of farmer organizations and cooperatives will be fundamental to achieve economies of scale in marketing, finance, and logistics. The labor wage in the agriculture sector will be updated regularly according to the inflation rate, and the increase in the labor productivity.

202. Productivity enhancement will depend on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agriculture sector depend on the access and adoption to improved technology and effective management of natural resources and other inputs to achieve total factor productivity increase. While subsidies may be an expedient approach in the short term to address targeting issues or market failures, in the long term they are not a viable, efficient, or effective solution to sustainable improvement of productivity. The ADS will focus on generation and adoption of sustainable technologies and practices, and will pilot a voucher system to empower farmers in their choice of inputs and extension services.

203. The overall outcome of improved productivity in the ADS is achieved through 13 outputs as follows:

Table 22: Outputs for Outcome 2 on Higher Productivity

No.	Area	Output	Description
2.1	Extension	A decentralized extension system responsive to farmers and agroenterprises' needs	Promote participation of private sector, cooperative sector, NGOs, and public sector in agricultural extension and adopt of a pro-poor decentralized extension system approach to dissemination and adoption of innovative and demand-oriented technology and know-how.
2.2	Research	A decentralized research system responsive to farmers and agroenterprises' needs	Restructure NARC with focus on decentralization and responsiveness to research needs of farmers and agroenterprises while fostering linkages within the Research-Education-Extension triangle.
2.3	Education	A strengthened agricultural education system	A comprehensive package of measures to ensure closer integration with research and extension, improved capacity of the university, agricultural colleges, and vocational schools, and better response to the needs of farmers and agroenterprises.
2.4	Land	A farming sector composed of adequately sized farms that use land efficiently and sustainably	Improve land use management and planning to promote a farming sector composed of adequately sized owner-operated, larger-size cooperatives and agro-business farms that use land efficiently and sustainably.
2.5	Irrigation	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	Expand irrigable area by the most economic and equitable means while increasing irrigation efficiency and intensity, and improving irrigation management.
2.6	Agricultural Inputs (including animal feeds)	Timely access to quality agricultural inputs at affordable price.	Formulate and adopt consistent policies for input supply and distribution.
2.7	Seeds	Effective implementation of existing seed policies including Seed Vision 2013-2025 through sufficient investment in resources and capacity building.	Ensure effective implementation of existing policies through sufficient investment in resources and capacity building.
2.8	Fertilizer	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	Maintain fertilizer and other subsidies at current level in the short term, review them in the medium term and adjust them in the long term while initiating a number of measures to improve productivity and fertilizer use efficiency, promote organic/bio fertilizer as supplementary and complementary to chemical fertilizer, and facilitate effective distribution and supply to meet demand.
2.9	Animal breeds	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	Ensure the desired level of improved breeds of livestock, poultry, and fish.
2.10	Mechanization	A range of mechanization options accessible to	Support mechanization with awareness creation, demand stimulation, concessionary

No.	Area	Output	Description
		farmers through the private sector.	financing arrangements, capacity building, and appropriate taxation.
2.11	Farmers' Resilience	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	Increase resilience of farmers to climate change events, disasters, and idiosyncratic shocks through the combination of measures such as adoption of stress tolerant crop and animal species, establishment of early warning systems (EWS), access to Farmers' Welfare Fund, food and seed reserves system, and climate smart agricultural practices.
2.12	Sustainable farming and GAP	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.	Establish Good Agricultural, Veterinary and Manufacturing Practices standards and promote adoption of good practices in integrated soil fertility, plant nutrients, pest management, feed management and herd management while promoting renewable energies based on biogas and biomass utilization.
2.13	Forestry	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	Develop subsistence production based forestry into a competitive, agriculture friendly and inclusive forest management practices in line with a holistic and community based landscape approach to natural resource management and livelihoods improvement.

4.5.3 Profitable Commercialization

204. The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agriculture sector from a substantial proportion of farming carried out solely for subsistence, and by default (i.e. no other livelihood or household food security options are available to the household), into a sector in which the vast majority of farming is carried out for commercial purposes and is connected to the local, national, and international markets.

205. This transformation towards a more commercialized agriculture requires a set of measures that focus not only on farmers, but, fundamentally on agroenterprises involved in the commercialization of agricultural products and services. These enterprises include input providers, producer companies, marketing cooperatives, storage operators, logistic companies, agroprocessors, importers and exporters of agricultural and food products, distributors, traders, and agricultural service providers (including financial service providers, insurance providers, business service providers).

206. Profitable commercialization requires the combination of a number of measures such as an enabling investment climate and a number of reforms to strengthen contractual arrangements, taxes, and financial services to promote an efficient commercial agriculture. The ADS also emphasizes the need of prioritizing a number of value chains to ensure that they achieve scale economies and therefore have national income and employment impact. Finally, the ADS supports the improvement of physical and institutional infrastructure to promote

commercial agriculture (agricultural roads, power, market information and market intelligence systems).

207. The overall outcome of profitable commercialization in the ADS is achieved through 8 outputs as follows:

Table 23: Outputs for Outcome 3 on Profitable Commercialization

No.	Area	Outputs	Description
3.1	Investment Climate	Improved investment climate for agricultural commercialization	Improved investment climate for agricultural commercialization through structured dialogues of the government with farmer organizations, trade organizations, cooperative organizations, and other private sector organizations.
3.2	Contracts	Contractual arrangements for commercial agriculture	Contractual arrangements for commercial agriculture, including contract farming, land leasing, equipment leasing, and secured transactions for warehouse receipts.
3.3	Taxes	Tax policy that supports an efficient commercial agriculture sector	Tax policy that supports an efficient commercial agriculture sector with the long term objective of agriculture sector providing the government with an additional source of revenues.
3.4	Finance and insurance	A variety of competitive and demand-driven financial and agricultural insurance products.	Diverse agricultural finance and insurance providers that supply a variety of competitive and demand-driven financial and agricultural insurance products.
3.5	Value Chains	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	A prioritized group value chains leading to national program to develop competitive agricultural value chains that increase value added and benefits to smallholder farmers.
3.6	Roads	Rural roads network expanded.	Rural roads network expanded.
3.7	Market Intelligence	Agricultural market information and ICT products for market intelligence.	Agricultural market information and ICT products for market intelligence.
3.8	Rural Electrification	Expanded rural electrification and renewable energies.	Rural electrification and renewable energies (water, solar, wind, biomass, biogas).

4.5.4 Increased Competitiveness

208. Accelerated agricultural growth represents the best way out of poverty for the millions in Nepal still living below the poverty line. Agricultural-based growth is 2 to 3 times more effective at reducing poverty than similar level of growth originating from other economic sectors. Experience from Asian economies has demonstrated that one of the most successful ways to stimulate growth in agriculture is by creating an enabling investment climate for agricultural entrepreneurs and by creating increased access to the critical knowledge and inputs

needed to achieve higher levels of productivity. For growth to be sustainable it needs to be rooted in structural changes and improvements that do not evaporate with fluctuations in global prices, disappear after a bad monsoon or depend on concessional external funding. The ADS has consequently placed its core focus on *competitiveness*. Competitiveness is founded on: a competent, hard-working and efficient work force; a clear understanding of what makes Nepal unique in the global market place; and, the determination and entrepreneurship to maximize productivity and innovate with new products and processes based on the country's natural endowments.

209. To achieve this vision, the energy and inventiveness of the private sector is essential. Since the design of the APP, many years ago, the private sector in Nepal has made considerable investments in agriculture and created thousands of sustainable jobs and incomes; the poultry sector has made dramatic improvement in productivity and is a well-organized industry, nursery investors in Banepa reach out to 20,000 farmers and collectors of medicinal herbs, commercial milk production is gradually replacing subsistence dairy, and the dramatic expansion of the vegetable sector is the product of small and medium investments in sustainable supply chains that link primary producers with viable markets. This emergence of the private sector in agriculture is no casual accident; it is happening on a global stage as well as in India, Bangladesh and Pakistan. The age of communications and better education has enabled Nepalese producers to learn better practices and access market information, while stability, rising market prices for land and remittances have created the disposable cash to make these investments.

210. These changes demand an approach to agricultural promotion and competitiveness that acknowledges the vital role of the private and cooperative sector, without conceding the critical function of the government to oversee, regulate and facilitate growth that is both competitive and pro-poor. This blending of private and cooperative sector energy and innovation with the steady hand of government to ensure positive public outcomes is often called public-private partnerships. The essence of these partnerships is to create some form of "*additionality*" that would not have been possible without the other's involvement. From the public point of view it affords the opportunity to leverage its funds and channelize outcomes while for the private and cooperative sector the addition of public funds reduced the perceived exposure to investing in high-risk high-potential projects.

211. The overall outcome of increased competitiveness in the ADS is achieved through 4 outputs as follows:

Table 24: Outputs for Outcome 4 on Increased Competitiveness

No.	Area	Output	Description
4.1	Market Infrastructure	Market infrastructure developed	Market infrastructure developed through the combination of public investment, PPP and community participation, focused on the development of prioritized value chains
4.2	Innovation	Growth of innovative small and medium agribusiness enterprises	Growth of innovative small and medium agribusiness enterprises through the combination of tax incentives, innovation matching grant funds, and agribusiness incubators.
4.3	Export Promotion	Growth of food and agricultural products exports	Growth of food and agricultural products exports through stronger trade negotiation capacity; capacity to apply and comply with SPS, AD (anti-dumping), and CVD (countervailing duties)measures;

No.	Area	Output	Description
			reduced/eliminated pro-manufacturing bias in tariff structure; and the policy of pegged exchange rate with India and its impact on the agriculture sector reviewed and assessed.
4.4	Quality and Safety	Enhanced food safety and quality	Enhanced food safety and quality standards, effective regulations and institutions.

4.6 ADS, Decentralization, and the new Federalist Structure

212. The emphasis of the strategic approach on inclusion and the governance pillar of the ADS have implications for two key dimensions which subsume the implementation of the ADS, namely decentralization and agroecological diversity.

213. The ADS will strongly support the implementation of the Local Self-Governance Act of 1999. Participatory planning at the local level will be essential to ensure identification of investments that are responsive to the local needs and accountabile to the local communities. The new guidelines by the Ministry of Finance in Budget Speech 2016/17 indicating a eight percent investment in agriculture, which is 43% increment over the previous year, provide a new impetus for the involvement of the local government in agricultural investment.

214. A new administrative structure of Government Nepal, with a Federalist Structure, is in place. The formulation that is being prepared by the ADS Team is based on the pre-Constitution administrative structure and might require some modification in the new administrative structure that will emerge in the future. In which case, the ADS Implementation Support Unit will be in charge of making the necessary revisions and submit to GoN for approval.

215. The ADS current formulation is in harmony with the principles of decentralization, local self-governance, and participatory planning that are likely to remain present in the future. For example, the ADS is promoting the establishment of community-based and management agricultural extension centers or CAESC (see section7.17.1); moreover, the ADS supports capacity building of regional and district agricultural development committees (see section 5.2.2).

4.7 ADS and Agroecological Diversity

216. Given the rich agroecological diversity of Nepal, investment programs will need to be tailored not only to the needs and potential of different communities but also to their different agroecological conditions. For example, in the design of irrigation projects, the conditions of terai, hills, and mountainous areas differ markedly and technological solutions will need to be adapted. Similarly, the approach to value chain development will require taking into consideration the geographical nature of the supply chain, from production areas to consumption or export destinations. In several areas of the hilly and mountainous areas of Nepal, commercialization of agriculture is not viable due to a number of factors including very poor infrastructure, difficult terrain, and agroclimatic conditions. Because of such diversity, even though the ADS will be one national strategy, its implementation at the local level will take into consideration specific agroecological and socioeconomic conditions. The presence of Community (VDC-based) Agricultural Extension Service Centers (CAESC) will ensure that the local conditions and agroecological conditions are taken into account. The development and dissemination of

productivity enhancing technologies and systems appropriate to subsistence agriculture will be a task for the research and extension system (see ADS Component 2 on Productivity).

217. The national programs of the ADS will coexist with local programs that are funded by local agencies (e.g. VDC, community based organization), private sector and cooperatives and integrated with national programs. The ADS will encourage local government to establish and fund local programs that address the specific local needs that cannot be addressed by national programs. In addition to the funding from the local agencies, additional sources of funding to local programs could be raised through application to various funds such as the Nepal Agricultural Research Fund (see section 5.3.2) and various funds for innovation and agro-entrepreneurship of youth, women, disadvantaged groups, and disadvantaged areas (see section 5.5.2).

4.8 ADS and Socioeconomic Diversity of Farmers

218. A simple way[49] to classify rural population is to consider three groups: (i) small commercial farmers; (ii) subsistence farmers; and (iii) landless or near landless. The first group of **small commercial farmers** includes those with holdings of 1.0 to 5.0 hectares and above, selling more than 30 percent of their output, ready for high intensity and high input agriculture, and also ready to participate in value chain development. These rural households concentrate on farming, have some capital, are a good risk for lenders, and are willing to take risks to increase their incomes. This set of farmers comprises 20 percent of rural/farm families[50], farming 50 percent of the land and presumably a somewhat higher proportion of output. If we add 0.3 percent of families with more than five hectares of land and commanding 3.3 percent of the land, then we have a total of 53 percent of the land. That comprises approximately 745,000 families for the ADS to concentrate on for small commercial production. It is from these 745,000 small commercial farmers that the engine of growth of the agriculture sector comes, driving rural non-farm employment, food supplies, and national income.

Table 25: Landholdings Distribution in 2001/02 and 2011/12

	2001/02						2011/12					
	Holding			Area of Holding			Holding			Area of Holding		
Size of holding	Number ('000)	Percent	Cumulative percent	Area ('000 ha)	Percent	Cumulative percent	Number ('000)	Percent	Cumulative percent	Area ('000 ha)	Percent	Cumulative percent
less than 0.5 ha	1,578.9	47.3	47.3	390.2	14.7	14.7	1,987.0	53.5	53.5	485.0	19.2	19.2
0.5 ha and under 1 ha	915.7	27.4	74.7	641.7	24.2	38.9	984.0	26.5	80.0	695.1	27.6	46.8
1 ha and	817.	24.5	99.2	1,4	53.8	92.7						

[49] The farm size thresholds considered in the simple classification should be adjusted for different agroecological zones and soil characteristics. Without going into considerable detail, the main point driven in the discussion is that different types of farmers, broadly classified in terms of farm size, require different approaches in the ADS.

[50] This is based on Agricultural Census figures for land distribution in 2011/12 . More recent comprehensive data are not available. However, the main arguments presented in this section will still be robust to slight changes in the land distribution.

under 5 ha	4			28.2			732.7	19.7	99.7	1,258.1	49.9	96.7
5 ha and over	25.4	0.8	100.0	194	7.3%	100.0	11.8	0.3	100.0	84.4	3.3	100.0
Total	3,337.4	100.0		2,654.1	100.0		3,715.6	100.0		2,522.5	100.0	

Source: TA Team's calculations based on CBS NSCA 2001/02 & NSCA 2011/12

219. The second category includes the **subsistence farmers** commanding from 0.5 to 1.0 hectare in size. They comprise 27 percent of rural families (roughly the same in numbers as the small commercial farmer). They farm on 28 percent of the total land. Some keep enough livestock to be small commercial farmers. But as a group, they are mostly subsistence producers with inadequate land for survival as purely subsistence farmers. They must find substantial rural non-farm employment to survive. They are more risk averse than farmers with more than one hectare of land and the higher incomes that go with that. They are very short of capital and need some kind of loans but will be seen as risky to all lenders, and they spend considerable time in non-farm employment and in search for such employment.

220. The third category includes the **landless and near landless**. They comprise nearly half of the rural population, 2.1 million families in number but command only 19 percent of the land. Of these, landless are six percent . Very little can be done to raise the incomes of this group through increased agricultural productivity. Of course a few at the upper end of the range will be able to prosper in horticulture or other high value production – but with great increase in risk in that they will have to put essentially all their land into horticulture. The contribution of ADS to the landless and most of 0.1 to 0.5 hectare holdings will be largely through the indirect effects of rapid growth in the rural non-farm sector stimulated by income growth of the small commercial farmer.

221. Those farmers with half to one hectare of land could achieve a substantial increase in family income from improved farming practices. However this group, compared to the small commercial farmer (those with more than one hectare) is more risk averse, focused less on farming relative to search for and performing off farm work, and more deficit in capital and ability to obtain loans.

222. The ADS recognizes the need of adapting approaches to different agroecological areas and different farm categories**.** The promotion of community extension service centers in each VDC of Nepal will assure that the localized needs of farmers and agroenterprises are met by the extension system. At the same time, even within the same agroecological zone, the needs of commercial, subsistence, and landless farmers will be different. While the commercial development of value chains will involve primarily small commercial farmers, cooperative farming could be a favored approach for subsistence farming. Vouchers for extension services might be primarily used by commercial farmers, whereas vouchers for input might be targeted primarily to subsistence farming. Commercial banking will be more appropriate for commercial farmers and microfinance more appropriate for subsistence farming.

223. The ADS promotes a decentralized approach to science and technology and empowers communities to reorient the extension, research, and education system to meet their needs. The services covering the small commercial farmer will be generally inappropriate to the subsistence farmer, and in the context of institutions keyed to the small commercial farmer (e.g. value

chains) the subsistence farmer will be left out except for those very few who can respond to the approaches suitable for the small commercial farmer. Therefore the ADS through its community based extension service centers (the CAESC) will promote approaches suitable to both subsistence and commercial farmers. The landless rural households will be benefiting from the ADS indirectly through the employment opportunities expanded in the rural non-farm sector and the growth of agriculture-based enterprises.

224. Eventually, over the course of the ADS twenty-year implementation, the process of agricultural transformation will proceed and an increasing number of rural households will find employment either in the rural non-farm sector or in the urban sector; a considerable number of rural household will also continue to migrate outside the country pulled either by higher income opportunity or pushed by the lack of profitable employment and attractive livelihood in the rural areas. Through either processes, the commercialization of the agriculture sector in Nepal will increase but commercial agricultural in Nepal will remain primarily a smallholder activity (namely farmers with less than 2 ha of land). Subsistence farming will continue to coexist with commercial farming for a long time, but its share of the total farming population will decline. The ADS will accelerate the process of commercialization, improving the income of the small commercial farmers and the livelihoods of the subsistence farmers, while generating growth and employment in the non-farm sector to absorb the increasing number of landless/marginally landless.

225. Table 26 shows the impact of different outputs of the ADS on the three groups of farmers (commercial, subsistence and landless). Commercial farmers are directly affected by most of the ADS measures and in some cases the impact is direct and very strong as in the case of irrigation, mechanization, value chain development, and exports. Subsistence farmers are also directly affected by most ADS measures. The direct effect is very strong in the case of the ADS measures related to gender, social, and geographical inclusion; land (e.g. addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land); access to quality and timely inputs (e.g. vouchers targeted to subsistence farmers, improved resilience); and access to microfinance and agricultural insurance. Landless or near landless will benefit from the ADS measures related to gender and social/geographic inclusion; access to forestry products; and growth of small and medium enterprises.

Table 26: Impact of ADS on different farm-size rural households

OUTCOME/Output	Commercial Farmers	Subsistence Farmers	Landless or near landless
GOVERNANCE			
Credibility of policy commitment	*	*	*
Improved coordination in ADS implementation	*	*	*
Integrated planning	*	*	*
Effective implementation support	*	*	*
Mechanisms established for gender equality and social and geographic inclusion	*	***	***
Timely and effective monitoring and evaluation	*	*	*
Mechanisms established for participation of civil society	*	*	*
Enhanced capacity of key institutions involved in ADS coordination and implementation	*	*	*
Improved food and nutrition security of disadvantaged groups	*	**	***
Performance-based Management System established	*	*	*
PRODUCTIVITY			

OUTCOME/Output	Commercial Farmers	Subsistence Farmers	Landless or near landless
Decentralized agricultural extension services	**	**	*
Decentralized agricultural research system	**	**	*
Strengthened agricultural education system	**	**	**
Adequately sized farms that use land efficiently and sustainably	**	***	*
Expanded and improved irrigation	***	**	*
Access to agricultural inputs	**	***	*
Implementation of seed policies	**	***	*
Fertilizer supply	**	***	*
Improved animal breeds	**	***	**
Mechanization options accessible	***	**	*
Improved resilience of farmers	**	***	*
Sustainable farming, GAP, and GVAHP adopted	**	**	*
Forestry development	*	**	***
PROFITABLE COMMERCIALIZATION			
Improved investment climate	*	*	*
Contract arrangements for commercial agriculture	**	**	*
Tax policy to support commercial agriculture	**	*	*
Agricultural finance and insurance	**	***	*
Competitive agricultural value chains	***	**	*
Rural roads network expanded	**	**	**
Agricultural market information	**	**	*
Rural electrification and renewable energies	**	**	**
COMPETITIVENESS			
Market infrastructure developed	**	**	*
Growth of small and medium agro-enterprises	**	**	***
Growth of food and agricultural products exports	***	**	*
Enhanced food quality and safety	**	**	**

Note:* Indirect impact; ** Direct impact; *** Direct impact – Very high

4.9 ADS and Urbanization

226. Nepal urban population reached 17% of the total in 2011 and was increasing at an annual rate of 3.38%, more than three times the growth (1.03%) of the rural population; by 2015, the urban population increased to 19% of total population, and has a growth rate of 4.1% annually (CBS Population Projections). Over the next 20 years, this demographic change will have enormous repercussions for Nepalese society and the agriculture sector in particular. If current trends continue, by the end of ADS period, more than one third of the Nepal population will be living in urban areas.

227. Increasing urban population translates not only in increasing urban food demand, but also in growing demand for a more diversified diet (away from grains), more stringent requirements for food safety, an increasing awareness and expectation of quality nutrition, and the need of large investments for the food logistics necessary to move food from rural areas around the world to the cities.

228. The ADS address these challenges through the development of competitive value chains that are better able to meet the diversified demand of an urban population and also the development of value chain infrastructure to reduce postharvest losses. The ADS is also promoting the enhancement of quality and safety assurance system that are needed not only to penetrate foreign markets but also to protect the domestic population from a number of food safety hazards. Albeit focused primarily on the food insecurity of the rural population, some of the interventions in nutrition awareness will also have a positive spillover effect on urban areas.

229. At the same time, urban poverty and inequality between rural and urban income might become more pronounced. Urban poverty often is associated with food poverty and undernutrition; increasing inequality often leads to social tension and puts pressure on providing quick solutions such as food subsidies and public food distribution to the urban poor.

230. Rapid urbanization results in the loss of some of the most fertile agricultural land found in peri-urban areas throughout Nepal ("land plotting"); solutions to promote urban food production through land use planning and zoning to preserve agricultural land around the cities face enormous opportunity costs. Because of rising urban population and the loss of peri-urban agricultural land, food security becomes an additional challenge for urban planning.

231. The ADS has recognized the issue of land plotting and loss of fertile agricultural land in peri-urban areas and will strongly support the implementation of the recent policy on Land Use Planning.

232. Food safety events due to a number of food borne zoonotic and non-zoonotic diseases can rapidly spread in urban environments. At the same time, nutritional unbalances are more pronounced in urban areas where under-nutrition, particularly of the poor, coexists with malnutrition (associated to a sedentary lifestyle and resulting in obesity and a number of non communicable diseases) of the non-poor.

233. The ADS will help improve surveillance system for zoonotic diseases, improved diagnostic capacity and testing, and improved response capacity.

5 ACTIVITIES OF THE ADS ACTION PLAN

5.1 The Framework of Outcomes, Outputs, and Activities

234. In the ADS logical framework, the sets of activities are those which are required to achieve the desired outputs. In ADS there are 35 outputs (see Table 27) under 4 outcome groups, and there are 232 individual actions required to achieve the outputs.

Table 27: Outcomes and Outputs of the ADS

Outcome	No	Output
1. Improved Governance	1.1	Credibility of policy commitment
	1.2	Improved coordination among institutions involved in the ADS implementation
	1.3	Integrated planning
	1.4	Effective implementation support
	1.5	Mechanisms established for gender equality and social and geographic inclusion in the ADS
	1.6	Timely and effective monitoring and evaluation of the ADS
	1.7	Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS (e.g. Farmers' Commission)
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food
	1.10	Performance-based management system with rewards to the performers established
2. Higher Productivity	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs
	2.2	A decentralized research system responsive to farmers and agroenterprises' needs
	2.3	A strengthened agricultural education system
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.
	2.6	Timely access to quality agricultural inputs at affordable price.
	2.7	Effective implementation of existing seed policies including Seed Vision 2013-2025 through sufficient investment in resources and capacity building.
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.
	2.10	A range of mechanization options accessible to farmers through the private sector.
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.
3. Profitable Commercialization	3.1	Improved investment climate for agricultural commercialization
	3.2	Contractual arrangements for commercial agriculture
	3.3	Tax policy that supports an efficient commercial agriculture sector
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises
	3.6	Rural roads network expanded.
	3.7	Agricultural market information and ICT products for market intelligence.
	3.8	Expanded rural electrification and renewable energies.
4. Increased Competitiveness	4.1	Market infrastructure developed
	4.2	Growth of innovative small and medium agribusiness enterprises
	4.3	Growth of food and agricultural products exports
	4.4	Enhanced food safety and quality

5.2 Activities Related to Outcome 1: Improved Governance

235. Outcome 1 of the ADS is Improved Governance. The outcome is achieved through 10 outputs and 54 activities illustrated in Table 28 and detailed in the following sections.

Table 28 Activities related to Outcome 1 on Improved Governance

Outcome	Output	Action		
1				**Improved Governance**
	1.1			**Credibility of policy commitment**
		1.1.1		Conduct awareness campaigns on ADS
		1.1.2		Ensure ADS monitoring covers issues of policy consistency and program continuity
		1.1.3		Formulate and enact regulations to facilitate longer tenure for key ADS positions
		1.1.4		ADS 5-yearly review
		1.1.5		Promote policy and legislation changes to ensure implementation of the ADS
		1.1.6		Establish Farmers' Commission to develop mechanisms that promote farmers' rights
	1.2			**Improved coordination in ADS implementation**
		1.2.1		Formulate amendments of the regulations for the establishment of NADSCC and CADIC
		1.2.2		Strengthen the capacity of NADSCC
		1.2.3		Establish subcommittees of NADSCC and ensure they meet regularly
		1.2.4		Strengthen the capacity of Central Agricultural Development Implementation Committee (CADIC)
		1.2.5		Promote similar meetings of the RADC and DADC
		1.2.6		Prepare Annual Sector Report
		1.2.7		Develop ADS Implementation Guidelines and Monitoring System
	1.3			**Integrated planning**
		1.3.1		Ensure integration of multi-ministry plans
		1.3.2		Ensure integration of long-term plans with annual workplans and budget
		1.3.3		Ensure regular monitoring of plans
	1.4			**Effective implementation support**
		1.4.1		ADS Implementation Support TA under MOAD to facilitate implementation
	1.5			**Mechanisms established for gender equality and social and geographic inclusion**
		1.5.1		Strengthening of the Food Security and Environmental Division (FSED)
		1.5.2		Generation and maintenance of national level GESI-based and geographic inclusion-based statistics
		1.5.3		Establishment and strengthening of GESI staff at central department and at district level agencies
		1.5.4		Enhancement of qualitative and quantitative aspects of participation of men and women farmers
		1.5.5		Making the agricultural extension service GESI responsive in all districts
		1.5.6		Improvement in access of farmers
		1.5.7		Promotion of GESI responsiveness in agricultural research
		1.5.8		Develop a GESI strategy
	1.6			**Timely and effective monitoring and evaluation**
		1.6.1		Strengthen the capacity of Monitoring and Evaluation units of central and district level
		1.6.2		Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation
		1.6.3		Monitoring and Evaluation of Food and Nutrition Security (institutionalization of NEKSAP)
		1.6.4		Conduct Agricultural and Livestock Census
		1.6.5		Conduct joint M&E missions including GON and development partners
	1.7			**Mechanisms established for participation of civil society**
		1.7.1		Establish and maintain an ADS website both in Nepali and English
		1.7.2		Establish an ADS Information Desk under the Policy and International Cooperation Coordination Division
		1.7.3		Establish similar ADS information desks at regions and districts
		1.7.4		Periodic presentation of ADS Monitoring and Evaluation Report to Agriculture and Water Resouce Committee of Legislature Parliament, civil society
	1.8			**Enhanced capacity of key institutions involved in ADS coordination and implementation**
		1.8.1		Capacity needs assessment
		1.8.2		Formulate a plan of capacity building of key institutions
		1.8.3		Implementation and monitoring of capacity building
			1.8.3.1	Conduct capacity building for GON institutions (MoAD,PICCD, ADSISU,DoA, DoLS, DFTQC and NARC)
			1.8.3.2	Conduct capacity building for National Peasants' Coalition
			1.8.3.3	Conduct capacity building for National Cooperative Federation
			1.8.3.4	Conduct capacity building for Professional Organizations/Associations, Private Sector Organizations, Producer's Organizations and Consumer Organizations
		1.8.4		Evaluate organizational reform of MoAD and related departments
		1.8.5		Establish Policy and International Cooperation Coordination Division (PICCD) at MoAD

Outcome	Output	Action		
	1.9			**Improved food and nutrition security of most disadvantaged groups**
		1.9.1		Design targeted food and nutrition security program
		1.9.2		Implement targeted national food and nutrition security program
		1.9.3		Implement NAFSP
		1.9.4		Implement FNSP
		1.9.5		Coordinate with ongoing food and nutrition security projects (eg Feed the Future) and multisector initiatives on nutrition and poverty alleviation
		1.9.6		Review of NAFSP, FNSP, and other food and nutrition security projects
		1.9.7		Strengthen the capacity of the central and district food security coordination mechanisms
		1.9.8		Promote formulation of Rights to Food and Food Sovereignty Legislation and monitor their implementation
	1.10			**Performance-based Management System Established**
		1.10.1		Establish guidelines and standard operating procedures
		1.10.2		Conduct a pilot program on performance-based management system
		1.10.3		Evaluate the pilot and make recommendations

5.2.1 Activities related to Output 1.1 on Credibility of Policy Commitment

236. **Conduct awareness campaigns about ADS**. The campaigns will be intensive during the initial period of the ADS (say the first 2 years) and more regular during the remaining period of the ADS. The campaigns will include:

a. Preparation and widely distribution of ADS Report (in Nepali and English).
b. Preparation and widely distribution of ADS newsletters.
c. Presentations about the ADS at the central level, regional level and at the district level (1 presentation per quarter over the first 2 years and 1 presentation every 6 months in the following years).
d. Conduct regular (quarterly) press/media releases from MoAD on ADS.

In all the material and information disseminated throughout these campaigns, the message of policy credibility, including consistency and continuity, will be highlighted as a critical factor to the success of ADS.

237. **Ensure that the annual monitoring of ADS covers the issues of policy consistency and policy/program continuity** that might have arisen during ADS implementation. Make monitoring reports widely available through internet, annual ADS conference, reports dissemination, etc. Whenever major breaches in policy consistency and policy/program continuity are detected, proposals for remedial actions should be proposed by the ADS Implementation Support Unit and other stakeholders and discussed in the CADIC and NADSCC subcommittees related to the ADS.

238. **Formulate and enact standard procedures that facilitate longer tenure for key positions in the ADS implementation**. Such positions might include Secretary MoAD, Joint Secretary PICCD, MoAD, DG of departments (DoA, DLS, DFTQC),flagship program managers Program/Project Directors. The length of tenure for these positions should be at least 3 years. The length of the tenure of these positions should be monitored to ensure that staff assigned to these positions could complete their expected tenure.

239. **Review, assess, and update (if necessary) ADS every 5 years**. The review and assessment will be led by NPC chairing the ADS Implementation Support Steering Committee that includes representatives of relevant agencies and civil society stakeholders. The review and evaluation will be conducted by an independent panel selected by the ADS Implementation Support Steering Committee. The review and assessment will include a section on policy

credibility, and highlight the two issues of consistency of policy implementation with the ADS and continuity in policy and program implementation. The recommendations of the review and evaluation panel will be evaluated by the National ADS Implementation Committee (NADSIC) who will make the final decisions regarding the need of updating or adjusting specific parts of the ADS.

240. **Promote policy and legislation changes to ensure implementation of the ADS**. The National ADS Implementation Committee (NADSIC) and the National ADS Coordination Committee (NADSCC) will be charged with the implementation and coordination of the ADS and to promote changes to ensure implementation of the ADS consistently with policy commitments.

241. **Establish Farmers' Commission to develop mechanisms that promote farmer rights in the ADS**. The ADS promotes the establishment of a high level fully authorized and permanent type of Farmer's Commission that can promote farmers' rights. The specific TOR, composition, and regulation of the Farmer's Commission will be determined in the early stages of ADS implementation. Although farmers' rights can be assured only through the constitution and legislation, the ADS will commission studies to help a better understanding of farmers' rights that could lead to the formulation of concrete proposals for adoption by GON. The studies will include:

a. Conceptualization of farmers' rights in Nepal and their assessment
b. Identification of gaps in farmers' rights as provided by existing legislation
c. Recommendations regarding legislation needed
d. Monitoring farmer's rights in Nepal
e. Review and make recommendations for possible revision of existing policies and laws related to the use of natural resources and farmers' rights over natural resources.

5.2.2 Activities related to Output 1.2 on Improved Coordination among Institutions involved in the ADS Implementation

242. **Establishment of relevant institutional mechanisms to implement and coordinate ADS, such as Farmers' Commission, NADSIC, NADSCC,CAESC and relevant APP institutions (**CADIC, RADC, and DADC);Formation of subcommittees of NADSCC. The MOAD Secretary will be the ex-officio Secretary of NADSCC; and representatives of the farmer commission, National Peasants Alliance, stakeholder organizations, cooperatives, and private sector are among the members of NADSCC, CADIC, RADC, and DADC.

243. **Strengthen the capacity of National ADS Coordination Committee (NADSCC**). Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the meetings. Publish announcement of meetings and the minutes of the meetings on the ADS website.

244. **Establish subcommittees of NADSCC and ensure they meet regularly** (at least quarterly). Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the meetings. Publish announcement of meetings and the minutes of the meetings on the ADS website. The subcommittees will include:

a. Subcommittee comprising agriculture and irrigation

b. Subcommittee comprising government sector, private sector, cooperative sector, and farmer organizations
c. Subcommittee comprising government sector and NGOs/INGOs
d. Subcommittee comprising government and development partners
e. Subcommittee comprisig Research-Extension-Education institutions
f. Subcommittee comprising Food Security, Nutrition, and Food Safety initiatives

245. **Strengthen the capacity of Central Agricultural Development Implementation Committee (CADIC**). Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the. Publish announcement of meetings and its minutes on the ADS website.

246. **Promote similar meetings of the RADC and DADC and ensure that the outcome of the regional and district meetings reach the central committee of CADIC for further action**. Assign a staff of the Implementation support Unit to follow up with the outcomes of the RADC and DADC.

247. **Prepare Annual Sector Report** on ADS by CADIC to NPC with assistance of Implementation Support Unit. Ensure the report is on the ADS website.

248. **Develop ADS Implementation Guidelines and Monitoring System** with the support of the ADS Implementation Support Unit to be widely disseminated and adopted by central, regional, and district agencies and organizations.

5.2.3 Activities related to Output 1.3 on Integrated Planning

249. **Ensure integration of multi-ministry plans,** through amending the National Planning Commission Formation and Operation Order, 2067 (2010) by stipulating that:

i. The NPC has the primary responsibility to coordinate and integrate sector plans and budgets of one Ministry that have an impact on or are impacted by the programs of another sector.
ii. The NPC shall present a report to the Parliament, together with the budget proposal of the Government on the manner in which sectoral plans that impact more than one Ministry are synchronized and impacted in the work plans and budget requests of the Ministries.

250. **Ensure integration of long-term plans with annual work plans and budget** through amending the National Planning Commission Formation and Operation Order, 2067 (2010) to the effect that NPC is assigned with responsibility also for:

i. The verification that 5-year plans are compatible with national and regional long-term strategies, policies and plans;
ii. The verification that annual plans and budget allocation are compatible with the 5 year plans; and,
iii. The obligation to notify Government and Parliament of any deviation thereof.

251. **Ensure regular monitoring of plans** through effective use of existing policy level coordination forums of the National ADS Implementation Committee (NADSIC) chaired by the Minister of MOAD for projects that are primarily implemented by the MOAD and the National Development Action Committee (NDAC) chaired by the PM by:

i. Convening the NADSIC and NDAC as per regulations (every 2 and 4 months respectively at least);
ii. Establish by Government Order under the Good Governance (Management and Operation) Regulations, 2009 that MDAC and NDAC annually report on the implementation of plans to the Government.

5.2.4 Activities related to Output 1.4 on Effective Implementation Support

252. **An ADS Implementation Support TA under MOAD to facilitate implementation of the ADS** through (i) capacity building of MOAD in policy analysis, policy harmonization, and regulatory framework; (ii) monitoring the ADS implementation status and helping to adjust the strategy as per the developmental stage of the sector; (iii) reviewing and evaluating the concept of sector wide approach (SWAP[51]) for Agriculture Sector to enhance better coordination and increase flow of investment in the sector; (iv) developing and institutionalizing performance-based management system; and (v) assisting various coordinating mechanisms (NADSCC, CADIC, DADC) with analytical information and advisory services, including preparation of annual ADS report by CADIC to NPC (VI) update base year(2015) data and subsequent targets, etc.

253. The Agriculture Development Strategy (ADS) Implementation Support Program (AISP) aims to provide continuity of technical support to Government of Nepal (GoN) during the early years of implementation of the ADS. Its objectives are:

1. To facilitate the implementation of the ADS through technical assistance, advisory services and capacity building
2. To improve coordination, planning, and policy monitoring and evaluation of the ADS
3. To facilitate harmonization of donors' programs with the implementation of the ADS

254. The implementation of the ADS will require coordination among different agencies and policy, legal and analytical skills that are currently dispersed. Effective coordination in turn is the basis for effective planning and policy formulation and monitoring. ADSISU is responsible in providing secretarial services for the National ADS Coordination Committee (NADSCC) and subcommittees, and providing technical inputs into the Central Agriculture Development Implementation Committee (CADIC). Endowed with policy, legal and analytical capacity, it will greatly contribute to bridging the gap between policy and implementation.

5.2.5 Activities related to Output 1.5 on Mechanisms Established for Gender Equality and Social and Geographic Inclusion in the ADS

255. **Strengthening of the Gender Equity and Social Inclusion** Section under Food Security and Environment Division in the Ministry of Agricultural Development (MOAD) for formulating and implementing agriculture policies, plans and programs from GESI and geographical inclusion perspectives. The activity will require at least 2 full time professional staff undertaking a number of capacity building activities (training, study tour, workshops) to allow them to contribute to the formulation and implementation of ADS from a GESI perspective. Additional capacity building could be provided by UN Women during the preparation of a GESI strategy for the ADS.

[51]Sector-Wide Approach (SWAp) is an approach to international development that "brings together governments, donors and other stakeholders within any sector. It is characterized by a set of operating principles rather than a specific package of policies or activities. The approach involves movement over time under government leadership towards: broadening policy dialogue; developing a single sector policy (that addresses private and public sector issues) and a common realistic expenditure program; common monitoring arrangements; and more coordinated procedures for funding and procurement."

256. **Generation and maintenance of national level GESI-based and geographic inclusion-based statistics** at MOAD/FSED within the monitoring and evaluation system as 'built-in mechanism' and providing feed-back for formulating plans and policies. In coordination with national statistics offices and development partners, build a database of GESI-based and geographic inclusion-based statistics to be maintained at MOAD/FSED. The activity will require the services of statistician and appropriate software and hardware. Periodic reports highlighting the key trends and issues emerging from analysis of data should be generated and disseminated by the FSED and contribute to the formulation of policies and plans.

257. **Establishment and strengthening of GESI staff with clearly defined responsibilities at central department and at district level agencies** for effective planning including budgeting, implementation and monitoring and evaluation/auditing of agricultural programs from GESI perspective. Ensure that in each related department (DOA, DLS, DFTQC, DOI, DOFSC) and district there is a staff with assigned responsibility and with capacity in GESI analysis and GESI-program implementation. Initial and follow up periodic training on GESI perspective and tools of analysis, planning, budgeting, and planning and evaluation will be provided to the GESI staff at the district level.

258. **Enhancement of qualitative and quantitative aspects of participation of men and women farmers** from all gender and social groups in agricultural development programs implemented by district, sub-district and community level entities. This activity implies that both in the design and implementation of agricultural program benefits accrue to women and socially excluded groups. Central level staff at FSED and GESI staff at the district level will be alerted if deviations from the inclusion principle occur during planning or implementation of ADS programs.

259. **Making the agricultural extension service GESI responsive in all districts**. GESI staff at the district level will ensure that at the planning and implementation stage, extension programs are GESI responsive. ADS will support cost of regular visits to project and program sites (e.g. once per month in each district) of GESI staff to monitor GESI-responsiveness of extension activities.

260. **Improvement in access of farmers** (from all gender and socio-economic groups in all geographical regions) to means of agriculture production (land, credit, inputs such as seeds, fertilizer, improved technology, irrigation, and market). This will require well functioning markets, extension system, infrastructure, and input delivery systems as already highlighted in other sections of the ADS. The GESI-perspective is to ensure that access of farmers to means or production includes different social groups, particularly disadvantaged ones. The GESI-staff will ensure that at project design and during implementation, this GESI-perspective is incorporated. The ADS will support, through technical assistance, programs implemented by the National Peasants' Coalition.

261. **Promotion of GESI responsiveness in the agricultural research** and technology development process in all geographical regions. GESI staff at NARC and GESI-staff at the central level and at district level should promote GESI-responsiveness in program design and implementation.

262. **Develop a GESI strategy** as part of the ADS to ensure GESI perspective in planning, implementation, and monitoring of ADS activities. The strategy might be formulated with the support of specialized agencies such as the UN Women. This will involve specialized technical assistance input.

5.2.6 Activities related to Output 1.6 on Timely and Effective Monitoring and Evaluation

263. **Strengthen the capacity of Monitoring and Evaluation units of central and district level.** This will include regular training of key staff at the M&E Division and M&E cell at central level departments (DOA, DLS, DFTQC, DOI, DOFSC) and staff in each district Planning and Monitoring cell of DADO and DLSO. Capacity building will also be complemented by resources (e.g. hardware and software, survey budget, monitoring visit budgets) to carry out M&E activities on a timely and professional manner.

264. **Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation** including:

i. Status and performance of major agricultural programs implemented by GON, private sectors, NGOs, academia, financial institutions, public boards, public corporations and Councils.
ii. Status and overall effectiveness of implementation of major policies and plans.
iii. Performance of implementation units and agencies.

265. This will involve development of the methodology and implementation of it over the course of the ADS, so that regular monitoring reports on the ADS status are available publicly, both in Nepali and English.

266. **Monitoring and Evaluation of Food and Nutrition Security**, based on the development and institutionalization of the NeKSAP system already existing at MOAD as a project supported by WFP through EU funding.

267. **Conduct an Agricultural and Livestock Census**, in coordination with the Agri-Business Promotion and Statistics Division of MOAD and Central Bureau of Statistics.

268. **Conduct joint M&E missions including GON and development partners** at central level led by NPC and local level by DDC/VDCs. Given the multi-sector nature of some of the key components, this would ensure contribution as well as ownership of the key sectors to the ADS as a whole, and monitoring process specifically.

5.2.7 Activities related to Output 1.7 on Mechanisms established for Participation of Civil Society in the Planning, Implementation, and Monitoring of the ADS

269. **Establish and maintain an ADS website both in Nepali and English**. In order to facilitate access of civil society to information pertaining to the ADS, a website on ADS will be established and information on ADS made available both in Nepali and English.

270. **Establish an ADS Information Desk under the Policy and International Cooperation Coordination Division**. The function of the ADS Information Desk will include:

- Make publications and reports on ADS available to the public (formulation reports, planning documents, monitoring reports, events, policy formulation, investment plans, projects and programs)
- Respond to general queries about ADS
- Redirect specific queries to relevant units of MOAD or other agencies

- Facilitate networking of ADS with the ADS stakeholders (farmer organizations, cooperatives, agribusiness enterprises, agricultural professional associations, government officials at the central and local level, development partners)

271. The establishment and maintenance of this information desk will require capacity building of staff in communication, appropriate hardware and software, and documentation and printing budget.

272. **Establish similar ADS information desks** at the Agricultural Information and Communication Center, Departments, regional, district, and district level under the umbrella of DOA/DLS and the Community Agricultural Extension Service Centers.

273. **Periodic presentation of ADS Monitoring and Evaluation Report to civil society.** This will be an annual event in Kathmandu and in each district where MOAD will report on the progress of ADS to civil society to elicit their feedback.

5.2.8 Activities related to Output 1.8 on Enhanced Capacity of Key Institutions involved in ADS Coordination and Implementation

274. **Capacity Needs assessment** of key institutions involved in the planning, policy formulation, implementation, coordination, and monitoring of the ADS. The institutions willinclude: NPC and MOAD, the key departments (DOA, DLS, DFTQC) under MOAD, NARC, Agriculture and Forestry University, and related agencies (MOI/DOI, MOE, MOFSC/DOF, MLD/DOLIDAR,), key farmer organizations, and key cooperative organizations. The capacity needs assessment is related to coordination and implementation.

275. **Formulate a plan of capacity building of key institutions**. The topics to be covered will vary from institution to institutions to a certain extent. Also, the methods of training and capacity building will vary according to the users. The capacity building activities should be more in depth over the first year of the ADS and then annually over the remaining years.

276. **Implementation and monitoring of capacity building.** This will involve bi-annual or annual courses and monitoring of impact of those capacity building activities. Specific capacity building activities will be organized for:

a. Key Government agencies
b. National Peasants' Coalition, National Cooperative Federation, and Private Sector Organizations

277. **Evaluate organizational reform of MOAD and at the department level** for improving effectiveness of the public system to implement the ADS. The evaluation and recommendations will be taken into account of the ongoing and previous analysis such as the OIE gap analysis for the DLS.

278. **Establish a Policy and International Cooperation Coordination Division at MOAD** by upgrading the Policy Section and Foreign aid coordination section under the Planning Division of MOAD. Capacity of such Division of MOAD should be strengthened to ensure that it could professionally carry out its functions. This Policy and International Cooperation Coordination Division would provide a mechanism to institutionalize capacity building in policy analysis within MOAD. ADS promotes the development of appropriate human resources to utilize the bilateral and multilateral provisions like WTO and BIMSTEC for the national interests.

5.2.9 Activities related to Output 1.9 on Improved Food and Nutrition Security of Most Disadvantaged Groups

279. These activities will be organized under one national Flagship Program to be referred to as the Food and Nutrition Security Program (FANUSEP). The Program will consists of three subprograms: the Agriculture and Food Security Project (AFSP), currently being implemented as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security Plan of Action (FNSP), prepared with assistance of FAO; and a new targeted national food and nutrition security project needs to be designed and implemented to complement AFSP, MSNP and FNSP. In order to maximize synergies with existing and planned similar program it is essential to coordinate with the Multi-sector Nutritional Plan (MSNP). The set of activities under this output 1.9 of the ADS include:

280. **Design a targeted national food and nutrition security program** to complement existing projects on food and nutrition security. The project will be designed towards the middle of the first 5-year term of the ADS and will benefit from monitoring, mid-term review, and evaluation of existing food and nutrition security programs, in coordination with ADS Implementation Support Unit (ADSISU).

281. **Implement a targeted national food and nutrition security program.** This program will be targeted to poor and disadvantaged groups and to geographically disadvantaged areas (e.g. Karnali) and include interventions to improve productivity, livelihood, and nutritional practices of targeted beneficiaries including pregnant and lactating women farmers. Based on the review and lessons learned from other similar programs including the already planned NAFSP and FNSP, the new program will use best practices (e.g. food and input vouchers, backyard vegetable gardens, on-farm storage, preserving, and processing, indigenous food, collection centers, food and cash for assets programs, micronutrient supplementation for children, girls' incentive programs, school feeding) and expand them to broader national coverage.

282. **Implement Agriculture and Food Security Project (AFSP).**This is a project focused on 19 hill and mountain districts of the Mid- and Far-Western development regions of Nepal. The beneficiaries of the project will be crop farmers (estimated direct beneficiaries 40,000), livestock farmers (27,000), women engaged in household/kitchen-garden production (35,000), and households with pregnant and nursing women (45,000). The project interventions will be organized and implemented through groups, including pre-existing groups in the project area. Also, given the crucial role of women in agriculture and nutrition, special attention will be given for their inclusion through project interventions.

283. **Implement Food and Nutrition Security Plan of Action (FNSP)** prepared by GoN and FAO. The project will be focused on 1 million hard core poor households (as defined in the Poverty Alleviation Fund program) and will involve a number of technology and nutrition interventions on field crops, fisheries, forestry, horticultural products, and livestock. GESI and Nutrition are mainstreamed in all components of the FSNSP; the project also intends to support legislation such as Rights to Food and Food and Nutrition Security Act.

284. **Coordinate with ongoing food and nutrition security projects,** such as Feed the Future funded by USAID, programs supported by WFP, and programs funded by GON and other development partners within the umbrella of the Multi-sector Nutritional Plan (MSNP) to ensure that the rural households and farmers most food insecurity are reached by various programs. The Program Manager of FANUSEP will report to the subcommittee on food and nutrition security of NADSCC (see section 7.7).

285. **Review of national programs on food and nutrition security**, to be undertaken towards the completion of the first 5-year period of the ADS.

286. **Strengthen the capacity of the central and district food security coordination mechanisms** such as the High Level Nutrition and Food Security Steering Committee(HLNFSSC) and the Nutrition and Food Security Coordination Committee (NFSCC) at NPC level and the District Nutrition and Food Security Steering Committee led by DDC at the district level. This will enhance the contribution of ADS towards MSNP and involves all the key actors on food security and nutrition.

287. **Promote formulation of Rights to Food and Food Sovereignty Legislation** and monitor their implementation. The rights to food and food sovereignty principles are established in the Constitution . The Article 36 of the Constitution has provisioned the notion of Food Sovereignty as right to food or perhaps right to food sufficiency. The ADS is consistent with these principles provided they are not intended to preclude international trade in food and will monitor the implementation of the principles during the course of the ADS.

5.2.10 Activities related to Output 1.10 on Performance-based Management System

288. These activities aim at improving performance of government service delivery, particularly of extension workers. The objective is to link performance with an incentive system rewarding good performers.

289. **Establish guidelines and standard operating procedures** with clearly defined evaluation criteria and monitoring systems for good performance.

290. **Conduct a pilot program on performance-based management system** based on a sample of 15 district, one for each physiographic region of Nepal. The idea is to monitor performance of different districts and based on good performance reward the 5 best DADO and DLS offices (see section9.3.1). The pilot will include design and implementation of the system by ADSISU.

291. **Evaluate the pilot and make recommendation** for its possible extension and institutionalization.

5.3 Activities Related to Outcome 2: Higher Productivity

292. Outcome 2 of the ADS is Higher Productivity. The outcome is achieved through 13 outputs and 112 activities illustrated in Table 29 and detailed in the following sections.

Table 29 Activities related to Outcome 2 on Higher Productivity

Outcome	Output	Activity		
2				**Enhanced productivity**
	2.1			**Decentralized agricultural extension services**
		2.1.1		**Establish Community Agricultural Extension Service Centers**
			2.1.1.1	Formulate general guidelines for CAESC
			2.1.1.2	Awareness campaign about the initiative
			2.1.1.3	Capacity building to support establishment of the CAESC
			2.1.1.4	Seed money for establishment of CAESC
			2.1.1.5	Training of CAESC extension technician
			2.1.1.6	Technical backstopping of CAESC
			2.1.1.7	External monitoring of CAESC

Outcome	Output	Activity		
		2.1.2		**Strengthen capacity of agriculture and livestock service centers and sub-centers**
			2.1.2.1	Training, workshops, study tours for technicians
			2.1.2.2	Resources for farm demonstrations and farmer training
			2.1.2.3	Improve infrastructure and equipment of the agriculture and livestock service centers and sub-centers
		2.1.3		**Establish voucher system for extension and advisory services**
			2.1.3.1	Design, implement and evaluate a pilot voucher scheme
			2.1.3.2	Provide budget for 50,000 vouchers in the pilot scheme
		2.1.4		**Introduce farmer marketing schools**
			2.1.4.1	Establish program capacity and training of trainers
			2.1.4.2	Implement FMS in those VDC prioritized for value chain development
		2.1.5		**Promote ICT in agricultural extension**
			2.1.5.1	Provide PCs or tablet with internet for each CAESCand agriculture and livestock service centers and sub-centers
			2.1.5.2	Mobile-based applications
		2.1.6		**Link farmer groups and organizations to banks and finance institutions**
		2.1.7		**Train field personnel to be sensitized to GESI and nutrition**
			2.1.7.1	Training in GESI and nutrition
			2.1.7.2	Increase the representation of women in JTAs
	2.2			**Decentralized agricultural research system**
		2.2.1		Restructure NARC as apex of NARS, with NRI and RARS implementing research, training under NARC
			2.2.1.1	Establish NARF, merge with NARDEF, integrate with NARC
			2.2.1.2	Finalize NARC Vision 2011-30 consistent with ADS
			2.2.1.3	Establish NRI for Horticulture, Animal Health, and Aquaculture and Fisheries
			2.2.1.4	Establish RARS in high hills, mid hills, terai of FWDR
			2.2.1.5	Establish Agricultural Mechanization Centers in terai (2), mid hills (1), and high hills (1) within existing research centers
			2.2.1.6	Consolidate and restructure RARS and programs to avoid duplication
		2.2.2		Strengthen linkages within the research-educational-extension triangle
	2.3			**Strengthened agricultural education system**
		2.3.1		Improve facilities and capacity of Agricultural University
		2.3.2		Establish new Departments in Agriculture and Forestry University
			2.3.2.1	Establish Agribusiness Department
			2.3.2.2	Establish Technology Dissemination Department
		2.3.3		Support for joint educational and research programs
		2.3.4		Establish Agricultural University partner operations with private sector
		2.3.5		Establish new agricultural/veterinary science colleges in other regions
		2.3.6		Strengthen capacity of CTEVT
		2.3.7		Strengthen capacity of professional staff from government, educational system, and private sector through overseas higher education degrees and trainings.
		2.3.8		Mainstream food and nutrition security into existing agricultural education system
	2.4			**Adequately sized farms that use land efficiently and sustainably**
		2.4.1		Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform
		2.4.2		Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office
		2.4.3		Establish land tribunals to settle tenancy and dual ownership cases
		2.4.4		Set and enforce targets for reduction of land holdings to the permitted ceiling
		2.4.5		Introduce regulation, incentives and disincentives to promote owner-operated farms, farming cooperatives and agribusiness farms.
		2.4.6		Pilot a “National land Leasing Corporation" scheme
		2.4.7		Reduce land fragmentation
			2.4.4.1	Legal measures
			2.4.4.2	Financial and tax incentives
		2.4.8		Enact contract farming act to promote agri-business operations
		2.4.9		Enact a Land Lease Act (could be part of Contract Farming Act) allowing long-term leasing at fair terms without acquisition of tenancy rights
		2.4.10		Implement land zoning policy
		2.4.11		Identify degraded land for rehabilitation
		2.4.12		Raise awareness of women's rights to land
	2.5			**Expanded and improved irrigation**
		2.5.1		Expand irrigation area by most feasible means
			2.5.1.1	Complete already commenced surface schemes
			2.5.1.2	Pilot construction of medium pond/ recharge basins

Outcome	Output	Activity		
			2.5.1.3	Repair damaged surface schemes
			2.5.1.4	Repair damaged tubewells
			2.5.1.5	Construct new tubewells
			2.5.1.6	Develop non-conventional irrigation
		2.5.2		Increase effective area of existing schemes
		2.5.3		Increase irrigation intensity
			2.5.3.1	Improve catchment management
			2.5.3.2	Construct inter-basin transfers
		2.5.4		Improve irrigation system and on-farm water management
			2.5.4.1	Reform and strengthen Irrigation Management Division to become the Department of Irrigation Development
			2.5.4.2	Provide adequate budget from government or ISF collection
			2.5.4.3	Build capacity of WUA and farmers
		2.5.5		Implement irrigation management system transfer
		2.5.6		Establish funding for O&M, strengthen ISF
		2.5.7		Implement integrated water resource management
		2.5.8		Build capacity of women farmers
	2.6			**Access to agricultural inputs**
		2.6.1		Formulate consistent policy
		2.6.2		Establish a voucher system for inputs
	2.7			**Implementation of seed policies**
		2.7.1		Enhance capacity of seed research stations
		2.7.2		Promote private, cooperative, community based seed production
		2.7.3		Enforce quality assurance systems
		2.7.4		Promote production of hybrids
		2.7.5		Establish an information system on seed demand and supply
		2.7.6		Implement Biodiversity Policy
		2.7.7		Pilot voucher system for seeds
		2.7.8		Promote open pollinated, improved and local seed production system to address seed sovereignty
	2.8			**Improved fertilizer supply distribution system**
		2.8.1		Improvement in fertilizer distribution system with appropriate level of subsidy
		2.8.2		Complimentary measures for efficient fertilizer use
			2.8.2.1	Demonstration and awareness campaign
			2.8.2.2	Promote organic and bio-fertilizer
			2.8.2.3	Conduct feasibility studies on fertilizer production and procurement
			2.8.2.4	Establish a fertilizer buffer stock
			2.8.2.5	Establish a database and monitoring system on fertilizer
			2.8.2.6	Voucher system for fertilizer
			2.8.2.7	Enforce quality assurance systems
	2.9			**Improved animal breeds**
		2.9.1		Develop livestock policy including development of breeding and animal health
		2.9.2		Capacity building for improved breeds production
		2.9.3		Establish a voucher system for animal breeds
		2.9.4		PPP program for availability of liquid nitrogen
	2.10			**Mechanization options accessible**
		2.10.1		Information dissemination
		2.10.2		Improve customer access to finance
		2.10.3		Capacity building for service and maintenance providers
		2.10.4		Enable the business environment for leasing agricultural equipment
		2.10.5		Revise regulation and taxes to support mechanization
		2.10.6		Pilot a voucher scheme
	2.11			**Improved resilience of farmers**
		2.11.1		Research on stress tolerant varieties and breeds
		2.11.2		Early warning system
		2.11.3		Climate information and weather indexation systems
		2.11.4		Pilot a Farmers Welfare Fund
		2.11.5		Promote agricultural insurance
		2.11.6		Strengthen food reserve system
		2.11.7		Strengthen the seed and feed/fodder reserve system
		2.11.8		Improve capacity of extension staff and farmers in climate smart agricultural practices
		2.11.9		Establish a fund for preparedness and response
	2.12			**Sustainable farming, GAP, and GVAHP adopted**
		2.12.1		Formulate standards

Outcome	Output	Activity		
		2.12.2		Extension programs with private sector
	2.13			**Forestry development**
		2.13.1		Strengthen enabling policy environment
		2.13.2		Develop and integrate land use models with forestry
		2.13.3		Forestry enterprises and marketing development
		2.13.4		Enhance forestry GESI
		2.13.5		Biodiversity conservation and climate change adaptation
		2.13.6		Develop institutional and human resources
		2.13.7		Research and extension for sustainable forestry
		2.13.8		Develop a forestry investment strategy and plan
		2.13.9		Develop a joint platform for policy

5.3.1 Activities related to Output 2.1 on a Decentralized Extension System Responsive to Farmers and Agroenterprises' Need

293. **Promote the establishment of Community Agricultural Extension Service Centers (CAESC) in each VDC**. Through awareness and capacity building activities initiated by the district offices for agriculture and livestock, the ADS will facilitate the establishment of CAESC in each VDC. The CAESC will be formed by local communities and will be governed by a board including representatives of local communities, cooperatives, farmer organizations, and agroenterprises. The members of the board will represent financial or in-kind contributions of different stakeholders. Initial funding of the CAESC will be provided by a combination of VDC funding (using the 15% guideline for agriculture investment), seed funding from the central government, and contributions of the different groups of stakeholders represented in the board. Each CAESC will be fully managed by its board and will recruit its own extension workers and technicians. The management of the financial and human resources of the CAESC will be fully dependent on the board of the CAESC.

294. The Program Manager for the flagship Decentralized Science, Technology, and Education Program (DSTEP) will organize the activities for the achievement of this output including the following contributions:

a. Formulate general guidelines for the establishment of the CAESC
b. Conduct awareness campaign about the initiative
c. Carry out capacity building in supporting the establishment of the CAESC
d. Provide seed money for the establishment of the CAESC; the seed money will be provided only under the condition that it leverages larger investment by the VDC and the community/cooperatives/private sector for the establishment of the CAESC
e. Organize training of extension workers recruited by the CAESC
f. Provide technical backstopping of the CAESC through the network of government Agriculture and Livestock Service Centers and Sub-centers (ALSC), district offices, and regional and national training centers.
g. Carry out or commission external monitoring and evaluation of the CAESC

295. The recurrent and program costs of the CAESC will be borne by the community centers themselves. The VDC might decide each year to allocate a percentage of its budget to the CAESC. The funding of the CAESC might also come from other sources (farmer organizations, private sector, projects, etc) depending on the capacity of the management of the CAESC to raise funds. Priority of extension activities will be decided by the Board of each CAESC. Priorities in extension work will be linked to support local programs. Local programs will coordinate with national programs under ADS. The CAESC will be in the best position to target farmers in their community

and establish priorities consistent with their governance bodies. The CAESCs will be linked to the government network of ALSC through exchange of information, training, and technical backstopping. Considering the structuring of federal systems in Nepal, the number of CAESCs might change according to the number of local bodies formed in new structures.

296. **Strengthen capacity of existing and planned agricultural and livestock service centers and sub-centers (ALSC)**. The government has 378 agricultural service centers and 999 livestock service centers/sub-centers. The ALSCs are often lacking in technical capacity of the staff to provide effective services, and in operational funds to carry out programs. The improved capacity of the government ALSC will be critical to the success of the backstopping of CAESCs at the VDC level. The ADS will support the strengthening of the ALSCs as follows:

a. Strengthen capacity of ALSC technical staff through training, workshops, demonstrations, and study tours. Specific capacity programs will address the following:
    i. Extension methods including farmer field schools (FFS), and farmer marketing schools (FMS)
    ii. Value chain development
    iii. Sustainable agricultural practices
    iv. Good agricultural and veterinary practices
    v. GESI
    vi. Nutrition
    vii. Farm budgeting
    viii. Business plan preparation
    ix. Use of ICT in extension
    x. Special needs of subsistence agriculture
b. Provide sufficient resources to carry out demonstrations and training activities including organization of FFS and FMS, visits to farmers, and monitoring activities.
c. Improve physical infrastructure and equipment of agriculture and livestock service centers and sub-centers.

297. **Promote a voucher system to empower farmers to access the best available extension and advisory services that meet their demand**. Establish the system on a pilot basis at first and then upscale contingent on favorable review of the pilot. The activity will require the following steps:

a. Design, implement and evaluate a pilot voucher scheme.
    i. Formulate the principles and institutional mechanism of a voucher system for extension services, including clear criteria for targeting.
    ii. Develop manual for implementing voucher system.
    iii. Introduce targeting system for extension by which vouchers are primarily targeted to subsistence and semi-commercial farmers in different agroecological areas.
    iv. Approve a number of extension service providers that farmers can use to redeem their vouchers. The extension service providers eligible to provide extension services to farmers include private sector companies, cooperatives, universities, NGOs, CSOs, professional associations, or PPP.
    v. Design an initial pilot for the voucher system including different target groups of farmers (subsistence and semi-commercial) in different agroecological areas.
    vi. Conduct a baseline for the monitoring and evaluation of the voucher system, making sure to include a control group in the monitoring and evaluation process.

vii. Monitor and evaluate the system and make recommendation for its upscaling and replication or cancelling of the program.

b. Provide budget for extension and advisory services vouchers for 50,000[52] farmers.

298. In case a favorable review of the pilot recommends the extension and replication of the voucher program to much larger number of beneficiaries allocation of adequate resources will b required. These could be obtained either by new budget allocation of GoN or by reallocation of a part of existing fertilizer subsidies.

299. **Introduce farmer marketing schools (FMS) program** to support the development of commercial agriculture and value chains in those areas where prioritized value chain development activities are planned through national programs (see section 5.4.5 on value chain development). The idea of farmer marketing school is to ensure sustainable and commercial linkages between farmers and consumers. Extension agents will work not only with farmer groups but with groups including farmers, traders, and agroenterprises (input suppliers, processors, logistics companies) to ensure higher value addition at each stage of the value chain. The activity will include different steps:

a. Establish program capacity and training of trainers (TOT), in FMS by developing training material and capacity of extension agents.
b. Implement FMS in those VDC prioritized for value chain development.
    i. Identify groups of farmers, traders, and agroenterprises related to the national programs for value chain development
    ii. Promote extension activities and information services to farmers and enterprises in facilities located inside or near collection centers and market centers where outreach will be more effective
    iii. Carry out farmer marketing schools program
    iv. Monitor and evaluate the program

300. **Promote Information Communication Technologies (ICTs) in agricultural extension**. Formulate program for ICT in agricultural extension involving use of two different technologies:

a. Provide PCs or tablets linked to internet for agro-information centers located in CAESC
b. Provide mobile-based applications

301. The applications (either computer-based or mobile-based) will provide technical and market information to farmers. Public-private partnerships between extension services (public or private), ICT companies, and mobile companies will be explored to make the services more cost effective. The type of services that could be provided include information about seeds, fertilizer, farming practices, market intelligence, crop forecasting, weather information, training programs, call for proposal from various matching grant funds, exports and imports, etc.

302. **Facilitate linkages of farmer groups and organizations with financial institutions, including commercial banks**. This will require a few steps as follows:

a. Conduct capacity building of farmer groups and organizations in basic accounting and business plan preparation to ensure that they become more viable customers for financial institutions and commercial banks.

[52] The number of farmers in the pilot could be changed during implementation depending on budget available and the complexity of the pilot. On average the pilot will cover about 667 farmers per district, but the distribution might be altered depending on the level of development of the district. This comment related to the number of farmers in the voucher pilot is valid for other voucher pilots (e.g. seed, fertilizers, etc.) mentioned below.

b. Facilitate preparation of business plans for farmer group and organization to present to financial institutions.
c. Organize quarterly or semi-annual workshops between farmer groups and organization and financial institutions to establish an ongoing dialogue and linkages.

303. **Train field level technical personnel to be sensitized to GESI and nutrition**. This will involve a number of measures such as:

a. Training in GESI and nutrition, incorporation into extension programs, particularly nutrition targeted to women.
b. Promote policy for increasing the representation of women in JT, JTA, and build GESI knowledge into the incentive-based reward system for promotion of technical personnel.

5.3.2 Activities related to Output 2.2 on a Decentralized Research System Responsive to Farmers and Agroenterprises' Need

304. **Restructure the national agricultural research system (NARS).** The NARS will be decentralized and made more responsive to the research needs of farmers, cooperatives, and agro-enterprises. The National Agricultural Research Council (NARC) will not implement any research projects and programs. Its functions will include formulating agricultural research policies, maintaining international relations and linkages, setting national standards, coordinating with national and international research institutes and educational organizations. NARC will act as the apex institution in national agriculture research system, a policy body to coordinate, facilitate, consolidate, monitor and evaluate research projects, fund research projects, manage human resources and training, and promote research linkages at national and international levels. Further NARC will endorse the research activities of individual farmers, independent research organizations and private sectors. The basic research, long term strategic research, applied research and adaptive research will be implemented by National agricultural research institutes (NARI). Agro-ecologically based regional agricultural research stations (RARS) will be responsible for collaborative and action research, and only action research will be managed at village level. Local level research activities will be managed according to the standards of central government. NARI and RARS will provide back up to local level stakeholders like CAESC, cooperatives, agro-enterprises, and others. The investment in public research institutions will be for public goods in agriculture such as food and nutrition security, food safety, bio safety, mitigating effect of climate change, environment and biodiversity conservation and reducing poverty. The restructuring will include:

a. Establishment of National Agriculture Research Fund (NARF) integrated with NARC. The existing NARDF will be merged with NARF.
b. Finalize the NARC Vision 2011-2030 consistent with ADS strategy and taking into account the needs of commercial and subsistence agriculture.
c. Increasing number of national research institutes. In addition to the existing National Agriculture Research Institute (NARI) and National Animal Science Research Institute (NASRI), establish the National Horticulture Research Institute (NHRI), the National Animal Health Research Institute (NAHRI) and the National Aquaculture and Fisheries Research Institute (NAFRI).
d. Establish Agricultural Research Stations at different agro-ecological zones (high hills, mid hills, and terai) in the Far Western Region to complement the recent decision to transform the Agricultural Research Station in Doti into a Regional Agriculture Research Station (RARS) in Far Western Region.
e. Establishment of Agriculture Mechanization Centers in the terai (2), mid hills (1), and high hills (1) within existing research centers.

f. Consolidate research stations and programs that are physically located in the proximity and perform similar research activities. It will reduce administrative cost and duplication of resources especially operational expenses.

305. **Strengthen linkages within the Research-Education-Extension (REE) triangle including with private sector.** NARC will establish functional linkages with educational institutions and with the extension service for the availability and sharing of their facilities including for educational purpose. Private sector will be involved in agriculture research and technology sectors through partnerships. The gene bank and animal genetic resource program need to be strengthened for the use of IPR. Similarly agriculture education institutions will be used in academic research that promotes genetic enhancement and supports applied research through collaborative projects and research grants funded by NARF and other sources. NARC will:

a. Establish guidelines on functional REE linkages for sharing facilities, staff and program collaboration with educational institutions and extension service.
b. Establish guidelines for REE private sector partnership incorporating provisions for commercialization and protection of potential return on commercial investment under Intellectual Property Rights (IPR) law.

5.3.3 Activities related to Output 2.3 on a Strengthened Agricultural Education System

306. The ADS will support a comprehensive package of measures to ensure closer integration with research and extension, improved capacity of the university, agricultural colleges, and vocational schools, and better response to the needs of farmers and agro-enterprises. These measures will include:

307. **Improve facilities and capacity of Agricultural and Forestry University**, and IAAS/TU based on periodic requests for improved laboratories and audiovisual and ICT equipment.

308. **Establish new departments in the Agriculture and Forestry University,** including an Agribusiness Department and a Technology Dissemination Department.

309. **Support for joint educational, research and extension programs** with NARC institutes under NARF and other funding sources, and with extension departments and district officers, including under the voucher system.

310. **Establish Agricultural University partner operations with private sector.** This may involve innovative ways such as: renting/leasing facilities, training to private/community organizations, and contract research under IPR.

311. **Establish new agricultural/veterinary science colleges in other regions** of Nepal.

312. **Strengthen capacity of Centers for Technical Education and Vocation Training (CTEVT)** through curriculum improvement and training of trainers. Ensure trainers are well acquainted with the needs of commercial and subsistence agriculture and able to direct trainees to research and extension resources to address their specific problems.

313. **Strengthen capacity of professional staff from government, educational system, and private sector through overseas degrees and training**. This will involve establishing an ADS Scholarship program to fund both short term and long term training and degrees for professional to study abroad, consistently with government regulations and needs. The program could be designed ensuring that after conferring degrees abroad, the beneficiaries have the

obligations of returning to Nepal for a period of at least 2 years, in the same organizations from where they had left. The scholarship program should be open to government staff and non-government staff including educational organizations staff and students, and private sector professionals.

314. **Mainstream food and nutrition security into existing agricultural education system**, through coordination between public health/medical institutes and agricultural universities, colleges, and vocational schools.

5.3.4 Activities related to Output 2.4 on a Farming Sector composed of adequately sized Farmers that use land efficiently and sustainably

315. **Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform.** This will include land use planning, land fragmentation, land tenure, land ceiling, etc., while protecting the interest of farmers and providing the framework for the commercialization of agricultural production. Farmer organizations, cooperatives, and private sector representatives will need to be involved in the decision together with the government. Representatives of farmer organizations, cooperatives, and private sector will need to be members of any future land commission that the government might initiate.

316. **Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office**. This will include functions of the existing Land Revenue Office, Land Reform Office, District Survey and Measurement Office, to fulfill the following functions:

a. Land Survey;
b. Cadastral Survey;
c. Management of Public, Government and Trust (Guthi) Land
d. Land Ceiling Enforcement; and
e. Land Registration

317. **Establish land tribunals to settle tenancy and dual ownership cases.** To that end -

a. Enact amendment to Lands Act 2021 that transfer responsibility for determination of disputed pre-1964 tenancy rights and dual ownership cases (Article 26 B) from the Land Reform Officer or Land Revenue Officer (the "prescribed authority" under the Act) to land tribunals formed of a professional judge of the District Court flanked by a representative of the landowners and a representative of the tenants.
b. Set numerical goals for the settlement of these cases per year and region
c. Determine sanctions upon District Land Management Offices that do not meet the targets

318. **Set and enforce targets for reduction of land holdings to the permitted ceiling** by the Lands Act and determine sanctions upon District Land Management Offices that do not meet the targets.

319. **Introduce regulation, incentives and disincentives to promote owner operated farms, farming cooperatives and agribusiness farms.** Improving sharecropping arrangements[53], reducing absentee landlord phenomena, and promoting land productivity will be supported by:

a. Incentives and disincentives:

[53]Keeping in mind that not all sharecropping arrangements are necessarily exploitative.

i. Reduce the maximum permissible sharecropping ratio of 50 – 50 (Lands Act, Article 33) to a ratio that will induce the sale of tilled land from landlords (especially absentee landlords) to the tillers, taking into consideration level of productivity of land;
ii. Impose an increasing rate of land tax on arable lands left fallow;
iii. Amend Lands Act to ensure that the utilization of land by tillers through sharecropping arrangements will not lead to acquisition of tenancy rights, thereby protecting sellers of land;
iv. Identify financial incentives (including, e.g. tax deductions for sellers; or matching grants possibly via the Poverty Alleviation Fund) for the acquisition of land by landless tenants from absentee landlords;
v. Clarify by policy statement that new tenancy rights will not be accrued.

b. Formulate and enact a Land Lease Act (or include in Contract Farming Act) which will allow a long-term leasing at fair terms (fixed rent or sharecropping) without acquisition of tenancy rights;
c. Promote and encourage formation of multi-purpose agricultural cooperatives and other communal or consolidated forms of joint farming including by:
    i. Amending the Cooperatives Act and the Land Act to allow land pooling (with or without registration in name of cooperative, with protection against tenancy acquisition arrangements);
    ii. Amending the Cooperatives Act to facilitate formation of multi-purpose cooperatives as well as other forms of communal/consolidated forms of farming rather than the single purpose formats, including for purposes of joint tilling and/or joint inputs (including FMIS), joint outputs and the enactment of an effective oversight body to ensure proper management;
    iii. Tax and financial incentives.

320. **Pilot a "Land leasing corporation" scheme** to facilitate land leasing of currently unutilized land."Land leasing corporation" refers to the idea of a land leasing company that provides intermediation between owners of land and prospective renters of land. The intermediary company guarantees the right of the owners and facilitates long-term leasing of land by private individuals, cooperatives, or private enterprises.

321. **Reduce land fragmentation.** Government would introduce legal, financial and tax incentives to reduce fragmentation.

a. Legal measures.
    i. Review the traditional inheritance law (Mulki Ayn) and make recommendations related to the possibility of allowing leaving land by testamentary disposition to one heir only;
    ii. Create lower limit on registration of sub-divisions of small agricultural plots to the effect that subdivisions of small plots because of inheritance (or sale)[54].
b. Financial and tax incentives. These will aim to encourage absentee (non-farmer) heirs to sell their inherited plot to the heir that tills the land by provision of:
    iii. fallow land tax (see above);
    iv. soft loans (e.g. through Agricultural Development Bank);

[54]Once zoning is introduced in Nepal, any subdivision of existing plots will be subject a procedure that could prevent creation of unsustainable plot sizes.

v. protection of seller from acquisition of tenancy during the years that the tiller pays for the land to the absentee-heir;
vi. introduce a "plot tax"

322. **Enact Contract Farming Act to promote agri-business operations**, that includes *inter alia:*

a. Collective bargaining arrangements with multiple small farmers
b. Protection of the parties to the contract (farmers against exploitation through credit and accumulation of debt and contractors against unauthorized sales)
c. Provisions on insurance of crops and livestock
d. Implementation of the Secured Transaction Act by establishment of Pledge Registry for Movable Property.

323. **Enact Land-Lease Act** (possibly as part of a Contract Farming Act) as a viable alternative to the sharecropping (with concern that tenancy may be re-enacted), and as a basis for agribusiness farming arrangements that provides for -

a. Fair lease contracts (i.a. – fixed fee or reasonable sharecropping ratios)
b. Measures to prevent acquisition of tenancy rights in long-term lease relations
c. Ability to secure long-term leases by agribusinesses for farming.

324. **Implement Land Zoning Policy.**

a. Introduce a simple zoning system on the basis of the existing Land Classification prepared by the Ministry of Land Reform and Management (MOLRM) by Government Order to be issued under Article 51E (1) the Lands Act and the recently approved Land Use Policy, as required by the Lands Act (Chapter 9A) to be able to prevent land plotting.
b. Formulate bylaws to accompany the recently approved Land Use Policy; determine in the bylaws that the Ministry of Federal Affair and Local Development may not change municipal boundaries of lands that are classified as agricultural lands without the consent of the Ministry of Agriculture Development and the Ministry of Land Reform and Management.

325. **Identify degraded land for rehabilitation and support program for rehabilitating degraded land.** This will involve survey and identification of suitable areas for rehabilitation, under collaboration between MOAD, MOFSC, MOLRM and local communities. It may include river beds/ flood damaged areas, eroded hill and mountain land, and degraded forest. After identification of degraded land, a program for rehabilitating degraded land will be establish through integration of farm, forestry, fishery, livestock, and soil conservation measures.

326. **Raise awareness on women's rights to land.** ADS will support legal literacy and pro-GESI mechanisms to communicate with women and excluded groups. Mechanisms will include joint ownership, establishment of incentives such as tax rebate policy if the land is registered under women's name, equal inheritance rights for women.

5.3.5 Activities related to Output 2.5 on Irrigation Area expanded equitably and viably, and improved Irrigation Efficiency and Management

327. ADS will support a comprehensive package of infrastructure and capacity building for irrigation development. The large scale of the investment and resources required suggests that Government and development partners may implement the recommendations under manageable subprojects.

328. **Expand irrigation area by most feasible means.** The activities supported under ADS will include:

a. **Complete already commenced surface schemes**. An estimated 80,000 ha remains to be completed in ongoing projects mostly in lowland areas, including the Sikta, Ranijamara and Babai Mahakali Irrigation, Karnali Zone Irrigation Development Project, Medium Irrigation and Sunsari-Morang and Bagmati Irrigation Projects, and others. About 113,000 ha of these schemes have been completed at a cost of $477 million, approximately $4,200/ha. Based on this, the estimated cost for completion of 80,000 ha is $320 million.

b. **Pilot construction of medium pond/recharge basins**. These are basins that store water and recharge groundwater, for use by both irrigation and water supply. They may be linked with surface or non-conventional irrigation (e.g. sprinklers, drip systems). At present no agency is specifically concerned with multi-purpose water resource development, but the Groundwater Resources Development Board (GWRDB) may be appropriate.
    i. Identify an appropriate responsible agency and conduct a study to identify potential recharge basin sites based on farmers' need and estimated cost-benefit analysis.
    ii. Construct pilot recharge basins under ADS, and replicate based on impact assessment.

c. **Repair damaged surface systems**, based on farmers' demand.
    i. Prepare an inventory of damaged systems, estimate rehabilitation cost and prepare a project for government or donor funding for the rehabilitation.
    ii. Implement the surface irrigation rehabilitation project, to cover a preliminary estimate of 34,000 ha, costing about $34 million at average of $1,000/ha.

d. **Repair damaged tubewells**, based on farmers' demand.
    i. Each GWRDB should develop an inventory of tubewells that need repair, using GIS to plot position, ownership, condition and reason for non-operation.
    ii. Prepare a project for government or donor funding for the rehabilitation.
    iii. Implement the tubewell repair project covering a preliminary estimate of 24,000ha, costing $2.4 million at average of $100/ha.

e. **Construct new tubewells**. STW capable of irrigating 2.5 to 4 ha cost around Rs70,000, including bore, lining, pump, pump shed and water distribution hose (lay flat). At between $250 and $400 per ha, an STW is less than 10% of the cost per hectare of a surface scheme. ADS, however, recognizes that farmers prefer surface schemes, since with STW they have to pay the electricity, kerosene or diesel cost of pumping. New deep tubewells are not recommended, until the STW program is nearing completion, since they are far more expensive per hectare irrigated and have greater requirements for social organization.
    i. Prepare a project to construct new tubewells: (i) covering an estimated 75,000 ha (of 150,000 ha potential), (ii) involving private sector in the provision of equipment, construction and technical advice, and (iii) an incentive package such as cost-sharing, removal of VAT and duties on pump-sets and pipes.
    ii. Implement the project.

f. **Develop non-conventional irrigation** (NCI), especially in hill areas. NCI based on small local water sources or water harvesting will be a preferable option. NCI including gravity piped, water harvesting and small-scale pumped systems, based on drip or sprinkler irrigation for high value crop production is consequently recommended as the focus of ADS irrigation sector investment in the hills. In the Terai, continuation of the treadle pump program is recommended, together with small lift pumping systems from nearby streams or other water sources. Additional methods include provision of hydraulic rams to lift water to land above river level. Steps to promote development of NCI supported by ADS are:
    i. Prepare an NCI development project for financing through a: (i) district-wise survey to identify suitable areas/ agri-communities for NCI development (this output will update the Irrigation Master Plan); (ii) linkage to other development initiatives, e.g. horticulture value chain development, pond/ recharge basins; (iii) identifying government, donor, private sector, and beneficiary funding partners and mechanisms such as cost sharing, incentive package for private sector equipment suppliers and commercial bank financing.
    ii. Implement the NCI development pilot cost-sharing project. Subsequent NCI development assumes private sector is fully able to develop the market for these technologies.

329. **Increase effective area of existing schemes.** ADS will support the following measures, on a cost-sharing basis (e.g. farmers contribute labor).

a. Increase irrigation efficiency. An estimated 170,000 ha of irrigation schemes operate at less than 40% efficiency. ADS will therefore encourage water user associations (WUA) and farmers to increase the efficiency of irrigation by support for: (i) lining or upgrading canals to reduce transmission losses; (ii) control structures to improve water management and distribution; (iii) land-leveling, better management, and constructing distribution networks (field channels); (iv) piped water conveyance in special need situation; and (v) building capacity of WUA in efficient irrigated agriculture management.
b. Expand command area. ADS will support canal network expansion to increase the irrigable area served by an existing irrigation system.
c. Improve water allocation and crop planning through provision of irrigated agriculture extension services to assist representative farmers from all sections of the canal to prepare cropping plans with involvement of to improve water distribution, crop productivity, equity and strengthening WUAs.
d. Construct permanent headworks and improve main canals on farmer-managed irrigation systems (FMIS). Government and donor funded programs to assist FMIS improve their main systems will be continued under ADS.
    i. Identify selected schemes and needs based on site conditions and local hydrology.
    ii. Prepare and implement works and build capacity for around 7000 FMIS.
e. Construct STWs in the tail areas of water short systems for supplementary water supply, under the proposed tubewell development program.

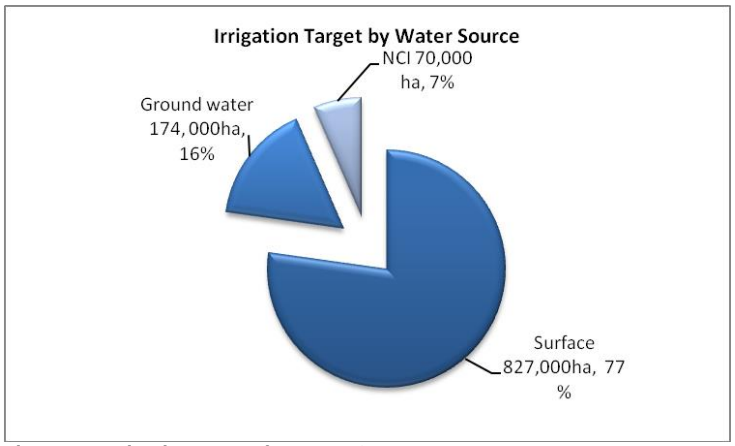


Figure 14: Irrigation Target by Water Source

330. These activities are expected to increase the irrigated area to a target of more than 80% of the potential irrigated area (Table 30). The majority (77%) will be from completion and rehabilitation of surface irrigation schemes, while new and rehabilitated ground water tube wells will contribute 16%.

Table 30: Irrigation target by water source

IRRIGATION			Year-Round Irrigation Targets			
	Outputs/ units	New '000ha	Surface	Ground water	NCI	total
Activities		by 2033	'000 ha			
1.1 Ongoing surface irrigation		80	80			
developments completed						
2.1 Develop NCI in Hills and Terai	4000 ha/y	70			70	
2.2 Develop new surface irrigation	1000 ha/y	20	20			
2.3 Construct new shallow tubewells	150,000 ha	150		150		
2.4 Define IMT project	40,000 ha	40	0			
Successor project	50,000 ha	5	0			
2.5 Inter-basin transfer schemes a/	3 projects x 70000ha	150	150			
3.1 Damaged surface schemes in Hills and Terai repaired	4k ha/y	67	67			
3.2 Damaged shallow and deep	2k ha/y	24		24		
tubewells repaired						
3.3 Headworks and main canals	25 ha/ scheme	170	170			
improved on around 7000 FMIS b/						
4.1 Irrigation efficiency on existing	10,000 ha/y		170			
schemes improved c/						
4.2 Water courses/field canals	10,000 ha/y		170			
constructed d/						
Total		776	827	174	70	1,071

IRRIGATION			Year-Round Irrigation Targets			
	Outputs/ units	New '000ha	Surface	Ground water	NCI	total
Activities		by 2033	'000 ha			
Nepal potential irrigable area						1,280
Target year-round irrigated area %						84%
percent of target by type			77%	16%	7%	

331. **Increase irrigation intensity.** On surface systems, around 70% of the irrigable area is limited to supplementary monsoon season irrigation due to seasonal river flows, unwillingness of farmers to pay for pumping costs and lack of reliable electricity supply. ADS will support increasing irrigation intensity by:

a. **Improve catchment management** and restoration including the program of Churia areas conservation, under responsibility of the Ministry of Forests and Soil Conservation.
b. **Construct inter-basin transfer** schemes (IBT) to move water from permanent to seasonal rivers to augment supply in water-short irrigation systems if economically justified by generation of hydropower. Full environmental impacts must be assessed and mitigated for approval of any IBT. Specific activities are:
    i. DOI to review East-West water transfer project proposal;
    ii. Design and construct 7 IBT systems for hydro-electricity power and irrigation with full EIA and safeguards.

332. **Improve irrigation system and on-farm water management.** ADS will provide support for better irrigation system and on-farm water management by:

a. Reform and strengthen the existing Irrigation Management Division to become the Department of Irrigation Development, for better management of agency-managed irrigation systems (AMIS);
b. Provide adequate levels of budget, either from national resources or the collection of adequate irrigation service fees (ISF);
c. Build capacity of WUAs and provide advice and possibly funding to farmers to improve their irrigation systems and practices.

333. **Implement irrigation management transfer (IMT).** WUAs or water committees are managing almost all of the 15,000 or so irrigation systems in Nepal. However, the main systems of 32 DOI developed irrigation schemes are managed by the Agency (DOI), with secondary and lower canals managed by WUAs and water user groups. ADS will support IMT to the WUAs to take responsibility for main systems in all or most of the remaining AMIS. Actions to be supported include:

a. Joint (agency/WUA) management for large schemes, but with greater responsibility progressively transferred to the WUA, for example in relation to employment of gatekeepers.
b. Full responsibility and ownership transferred a WUA or a federation of WUAs for medium schemes (5,000 to 10,000ha).
c. Prepare and implement an Irrigation Management Transfer pilot project for two medium to large irrigation systems, with formation of farmer-owned Irrigation Management Company or cooperative (IMC) as one component, and TA commissioned to study international experience and recommend the mechanisms for ownership transfer. IMC would be responsible for operational

and financial management including setting and collection of ISF, with the WUA (or federation of WUAs) acting as the board, and a professional irrigation manager (e.g. DOI engineer) appointed to recruit operational management staff.

d. Harmonizing and streamlining legal structures required for ownership transfer to WUAs.

334. **Establish funding for Operation and Maintenance (O&M)**.DOI is responsible for headworks and main canal management, including O&M of the main system of AMIS. WUAs are intended to contribute part of the irrigation service fee (ISF) that they collect, but this is currently not effective in a large majority of schemes. In the short term ADS will support measures to promote and enforce ISF collection to provide adequate funds for O&M of the lower canals, and a contribution to main system maintenance. Measures include:

a. Introduce incentives into the system, with (for example) government budget support proportional to ISF collection, with a time lag sufficient to allow the amount to be included in the budget request.
b. Introduce legislation to require a receipt for ISF payment to be attached to land tax payment. This option would require full or partial exemptions to be permitted when water cannot be provided to a particular canal or farmer.
c. Enforce the existing requirement that ISF payments be brought up to date before a land sale can be registered.
d. Define and charge ISFs – per crop in the short-term, and per volume of water in the long term on schemes with volumetric metering.

335. **Implement integrated water resource management**.

a. Finalize the Integrated Water Resources Management (IWRM) policy drafted in 2010; part of which is now reflected in the Irrigation Policy 2070.
b. Introduce the IWRM nationally, with management based on hydraulic boundary, starting in areas where there is inter-sectoral competition or conflict over water.

336. **Build capacity of Women Farmers in Irrigated Agriculture and Water Resource Management.** The programs to improve irrigation and water resources management designed under the ADS will include a capacity building module. In order to meet GESI dimension a program of capacity building for women farmers in how to build, manage, and maintain irrigation system will need to accompany other measures.

5.3.6 Activities related to Output 2.6 on Timely Access to Quality Agricultural Inputs at Affordable Price

337. **Formulate consistent policy for agricultural input supply and distribution.** ADS will support formulation of policies that include:

a. *Target* the poor, women, marginal, and remote farmers.
b. *Size of subsidy* rationalized with other possible uses of public resources.
c. *Phasing out* subsidies over time to avoid creating dependency or negative impact if they are withdrawn abruptly.
d. *Affordability* to be sustained within the government's revenue and budget capacity.
e. *Monitoring* subsidies distribution according to the regulations.
f. *Outcome and impact* evaluation of the subsidies.

338. Guidelines for such a policy in order to ensure consistency with the overall ADS are:

a. *Consistency over time*: Do not create abrupt changes unless those are announced with sufficient lead time and an adjustment policy is well designed.

b. *Promotion of private and cooperative sector*: do not use subsidies to promote parastatals at the detriment of the private and cooperative sector involved in the supply and distribution of inputs.
c. *Periodic review of subsidy policy.* A periodic review of the subsidy policy should be conducted (e.g. every 5 years). On the basis of the study the level, area and duration of subsidy will be declared for the subsequent five years. Some subsidies might be phased out (if they have accomplished their objectives) and others might be introduced.
d. *Promotion of competitiveness*: ensure that there are complementary measures to ensure competitiveness (for example demonstrations about effective and efficient input use).
e. *Promotion of sustainability*: ensure the sustainable use of input through improved practices and assured supply and distribution chains.
f. *Promotion of quality*: ensure that agencies responsible to assure the quality of agricultural input have the capacity, resources, and authority of doing so.
g. *Inclusiveness*: ensure that good and timely inputs are accessible to everybody particularly to the less favored groups.
h. *Regressive nature of subsidies*: do not create a situation in which the greatest beneficiaries of the subsidy system are those who need the subsidies the least.

339. **Establish voucher system for inputs** whereby targeted farmers are provided with a voucher that empowers them to purchase the input of their preference. First develop a manual for implementation of the system; then pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale. If evaluation leads to a replication and expansion of the voucher system, then a clear exit strategy should be established.

5.3.7 Activities related to Output 2.7 on Effective Implementation of Existing Seed[55] Policies including Seed Vision 2025 through sufficient Investment in Resources and Capacity Building.

340. The activities related to seed are consistent with Seed Vision 2025, Agricultural Biodiversity Policy 2005, and Seed Regulation 2069.

341. **Enhance capacity of seed research stations** to produce breeder and foundation seeds. This will involve:

a. Increased funding to enhance capacity of public research institutions and research stations, universities, and private sector industry.
b. Maintaining good quality land races and open pollinated varieties (OPVs) of different crops in the areas that are dominated by subsistence agriculture, and establish good linkages with international agencies.

342. **Promote private and cooperative sector and community based seed production.** This will involve:

a. Promoting partnerships with relevant public, private and cooperative organizations, farms and nurseries for production of quality planting materials
b. Encouraging private and cooperative sector to slowly take over the commercial production of saplings, seeds, while the role of government is that of facilitator, quality control, policy and regulations formulation, information provider, and monitoring and evaluation

[55] Seed in the ADS includes both crop seed and fodder seed.

c. Providing breeder and foundation seed to private and cooperative seed growers
d. Promoting public and private sector to produce breeder, foundation and hybrid seeds
e. Promoting seed enterprise as an industry catering to the national needs and for export
f. Promoting community based seed production and agro-biodiversity in inaccessible remote areas.

343. **Enforce quality assurance systems.** This will involve:
a. Strengthening planting materials certification processes through improved capacity of concerned public organizations
b. Enforcing compliance of nurseries with farm inputs quality standards
c. Encouraging provision of quality control and certification from private sector as well as government
d. Enforce legislation that compensates farmers when purchasing poor quality seed not complying with existing standards

344. **Promote production of hybrids**. This will involve:
a. Allowing imports of suitable hybrids after necessary testing.
b. Encouraging local hybrid seed production within GON organizations, the private and cooperative sector, and in partnership with foreign companies.

345. **Establish an information system about seed demand and supply**. This will involve an updated database available to the public containing timely information about seed production and seed stock for main crops with information about nurseries, breeding stations, and research centers. The database will also contain estimated demand by crop and area and information about suppliers and inspections. Ensure information is readily available to women, Dalit, Janajati/Adivasi, and Madhesi farmers.

346. **Implement Biodiversity Policy**. This will involve:
a. Strengthening collection, classification, and assessment of diversified bio resources relevant to agriculture, and support scientific report/ documentation
b. Initiate a system of registration of agro-biodiversity
c. Develop regulation for the research and experimentation of Nepalese Bio-diversity and Genetic Resources
d. Restrict the import, production and use of Genetically Modified Organism (Seed, crops and livestock) except for research to avoid negative impact on bio-diversity, genetic resources, and human health.

347. **Pilot voucher system for seeds** whereby targeted farmers are provided with a voucher that empowers them to purchase the input (in this case seeds) of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.

5.3.8 Activities related to Output 2.8 on a pragmatic Solution to Fertilizer Supply that is acceptable in the short-term, clearly indicates a Strategy for the medium and long term, and aims at Improving Productivity

348. **Gradual transformation of fertilizer subsidy system into more effective delivery.** Maintain fertilizer subsidy at current level in the short term, review them in the medium term and adjust them in the long term. This will involve implementing a study possibly entitled 'Review of Impact of Fertilizer Subsidy' every 5 years during ADS.

349. **Complementary measures to improve productivity and fertilizer use efficiency** will involve promoting a greater private sector role, and include:

a. Demonstration and awareness campaign to demonstrate efficient use of fertilizer and educate farmers about the cost and benefit of efficient use of fertilizer. The campaign should involve private sector fertilizer suppliers, e.g. to sponsor or conduct demonstrations and provide technical information to farmers.
b. Promote organic and bio-fertilizer at least at the supplementary or complementary level that can sustain the soil fertility and use inorganic fertilizers to attain higher production and productivity. This will involve:
    i. Extension on best practices and demonstrations involving private sector suppliers and manufacturers.
    ii. Facilitating establishment of commercial bio-fertilizer production enterprises based on municipal biomass and agro-processing waste, e.g. through PPP, quality and safety analysis, and registration of products that meet government standards.
c. Conduct feasibility studies on fertilizer production and procurement. These studies might include feasibility of:
    i. Establishing a fertilizer factory in the country under PPP arrangement;
    ii. Obtaining equity shares of fertilizers factory outside the country, possibly as a FDI trade deal with neighbors wanting hydro-electric power and irrigation water;
    iii. Establishing long-term contracts with foreign suppliers of fertilizer (both in India and third countries).
d. Establish a fertilizer buffer stock under PPP arrangement.
e. Establish database and monitoring system on fertilizer use and distribution, including both official and informal import (the latter to be obtained through survey data).
f. Establish voucher system for fertilizer whereby targeted farmers are provided with a voucher that empowers them to purchase the input (in this case chemical or organic/bio-fertilizer) of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.
g. Enforce quality assurance systems**.** This will involve:
    i. Strengthening fertilizer inspection through improved capacity of concerned public organizations
    ii. Enforcing compliance of importers and dealers with fertilizer quality standards
    iii. Encouraging provision of quality control and certification from private sector as well as government

5.3.9 Activities related to Output 2.9 on a Variety of Improved Animal Breeds Appropriate for the Nepal Farming Systems Conditions are available to Farmers

350. **Develop livestock policy** including breeding development and animal health.

351. **Capacity building for improved breed production.**

a. Support pure breed production farms.
b. Promote private sector and cooperatives to produce improved breeds with proper recording of progeny, productivity, and efficiency.

c. Expansion of artificial insemination laboratories and service for the promotion of breeding programs for breeds improvement.
d. Support private sector to establish grandparent stocks of poultry.
e. Support production of improved breeds to private sector.
f. Support recording and improvement of quality, health status, productivity of improved herds.
g. Support implementation of livestock insurance schemes.

352. **Establish a voucher system for animal breeds, veterinary services, and livestock insurance**, whereby targeted farmers are provided with a voucher that empowers them to purchase the input of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.

353. **Reliable, efficient and continuous supply of Liquid Nitrogen (LN_2) for the AI program**. One of the effective approaches could be the establishment of LN2 plant on PPP model.

5.3.10 Activities related to Output 2.10 on a Range of Mechanization Options accessible to Farmers through the Private Sector

354. A mechanization strategy focusing on awareness creation, demand stimulation, a concessionary financing arrangement, technical capacity building of the dealer network, particularly for the 2-wheel power tillers and mini-tiller dealers throughout the country and some modifications in taxation. This strategy needs a lot of coordination with the private sector equipment providers and with the commercial banking sector. The approach would be oriented to: (i) power tillers with multifunctional tilling options in the terai; (ii) gradual increase in the numbers of mini 2-wheelers (with some optional attachments) in hilly areas; and (iii) labor-saving low energy implements and mechanized irrigation in the mountains. There would be four components to this strategy:

355. **Information dissemination**: The private sector has engaged strongly in sales of 4-wheelers with approximately 4,500 tractors sold in 2011, but most farmers and potential clients of 2-wheelers (and mini tillers) have little information on 2-wheel tractor options and benefits. Therefore ADS will support the conduct of social marketing campaigns on a cost sharing basis with 2-wheel tractor importers and dealers emphasizing the advantages of a 2-wheel tractor over the traditional forms of cultivation, harvesting etc. There would be three separate campaigns one for the mountains, one for the hills and one for the terai. Each of them would have the same aim, to inform farmers of the potential options, however the orientation and relative weighting of these options would be different in the three different agro-economic zones.

356. **Improve customer access to finance**: Although 4-wheel tractors fall under the regular financing schemes of the commercial banks (hire-purchase), the 2-wheel tractors are largely ignored by bank financing and without license plates, the banks are hesitant to provide loans to the prospective owners of the mini-tillers. Likewise the importers and dealers of the 2-wheeled power tillers have yet to pursue the same kind of aggressive financing implemented by a few of the 4-wheel tractor dealers. Some commercial banks have shown keen interest in financing 2-wheel tractor sales through dealer financing rather than through consumer financing. Dealers are already providing credit for mini tillers. With the dealers and importers co-investing in providing loans to the prospective clients, it is expected that sales would increase significantly from the first year itself.

a. Promote commercial banks to finance dealers to on-lend their customers under two options:
    i. Extend credit on commercial terms to dealers so that they can also on-lend at rates around 17%[56];
    ii. Access cheaper credit from the Rastra Bank's "deprived sector" lending program although there are restrictions on the targeting of end users.

357. **Capacity building of service and maintenance providers**: Though the 2-wheelers' and mini-tillers' technical configuration is relatively simple and can be compared to that of the diesel pump sets or even motorcycles, the linkage with after sales service and spare parts is poor. Hence it is proposed that ADS supports:

a. Dealers to increase the technical capacity of the smaller existing workshops that are scattered through the countryside, instead of setting up their own repair workshops. These workshops could also stock spare parts and act as small brokers for some of the 30-35 dealers operating in major commercial centers.
b. Dealers to offer technical training for 1,000 farmer/service providers to enable them to become local experts in the impacts of mechanization (additional germination rates, cost saving implications, the advantage of zero leveling, the impact of seed drills etc.)

358. **Enable the business environment for leasing agricultural equipment**. Introduce the following legal measures that would allow leasing companies to operate:

a. Legal clarification (ruling) that the Banking Institutions Act does not restrict non-banking institutions to engage in leasing; and
b. Establish a pledge registry (under the Secured Transactions Act or under by amendment to the Contracts Act) to allow securing the financing for leasing operations by leasing companies.

359. **Revise regulation and taxes to support mechanization**: To accompany the three above mentioned components, government will implement the following supportive fiscal measures:

a. Waive the VAT amount and import duty on spare parts (which is over 28%), to reduce the proliferation of sub-standard spare parts brought illegally across the border and promote business of local dealers and sub dealers.
b. Remove the 5-year restriction on change of ownership of 2-wheel tractors, to encourage mechanization.
c. Impose full VAT on the purchase of 4-wheelers but not on 2-wheelers. The majority of 4-wheel tractors are used exclusively for commercial transport rather than for agriculture.
d. Reduce the road tax for 2-wheelers. Currently it is Rs. 2,900 for 4-wheeler and 2,300 for 2-wheelers, which is a disincentive for a 2-wheel purchase if it is to be used for agriculture and is excessive in comparison to the 4-wheeler.

360. **Pilot a voucher scheme.** This may entail provision of a 30% subsidy on all attachments for 2-wheelers and 4-wheelers, to increase the rate of attachment usage (seed drills, reapers, laser levelers, planters etc.). This would last just 3 years and be accompanied by the above mentioned social marketing campaign.

[56]Commercial banks must lend up to 15 % of their outstanding portfolio to agriculture and energy or face fines on loans unallocated to this sector (Monetary Policy 2016/17). They therefore have an incentive to constantly look for lending to this sector. Commercial bank also have the option to access concessionary financing for the "deprived sector" (cooperatives and micro-finance institutions) at 10-10.5%, but there are restrictions on how the funds are deployed.

5.3.11 Activities related to Output 2.11 on Improved Resilience of Farmers to Climate Change, Disasters, Price Volatility, and Other Shocks

361. **Conduct research on stress tolerant varieties and breeds** of crops, livestock and fish for the development of climate resilient agriculture that are at the same time higher in yield.

362. **Establish an early warning system** and adopt early warning information for managing climate change risks in agriculture and food and nutrition security.

363. **Establish climate information and weather indexation systems** designed to provide information to farmers. This will include building capacity of the Meteorology Department to provide weather risk indexation at local levels (as described for agricultural insurance), and building capacity for crop yield forecasting based on weather indexation.

364. **Pilot a Farmers Welfare Fund** that would provide assistance to farmers under distress through access to financial resources to overcome temporary losses of income. The fund could be attached to the Community Agricultural Extension Service Centers, and may be a revolving fund with initial seed funding from central and local government and replenished by members.

365. **Promote agricultural insurance** (details under Commercialization).

366. **Strengthen the food reserve system** to cope with emergency and food safety distribution to targeted farm households.

367. **Strengthen the seed and feed/fodder reserve system** to cope with natural disasters such as flood in the terai, heavy snow fall in the high mountain areas. Promote Community Managed Seed Banks at VDC level, in coordination with the CAESC.

368. **Improve capacity of extension staff and farmers in climate smart agricultural practices** through training, FFS, and demonstrations.

369. **Establish a fund for preparedness and response** to droughts, flood, epidemics and emergencies affecting rural areas and farmers not covered by agricultural insurance.

5.3.12 Activities related to Output 2.12 on Sustainable Farming, Good Agricultural Practices (GAP), Good Veterinary Husbandry Practices (GVAHP) are established and adopted.

370. **Formulate standards** for good Agricultural, Manufacturing and Veterinary and Animal Husbandry Practices suitable to socioeconomic and agroecological conditions, and comparable to international standards through interaction by public and private sector.

371. **Conduct extension programs with private sector** to promote adoption of best practices standards and green technologies, including the following:

a. integrated soil fertility management,
b. integrated plant nutrients management,
c. integrated pest management (IPM),
d. renewable energies based on biogas and biomass utilization,
e. organic farming,
f. farm sanitation and hygiene good practices,

g. practices to prevent use of hazardous chemicals in crops and regulations of the use of antibiotics in livestock production process.

5.3.13 Activities related to Output 2.13 on Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.

372. **Strengthen enabling policy environment** for developing, managing, and sustaining forest products and services in a more commercial and sustainable way. This will require the following measures:

a. Develop new forestry sector strategy aligning with changing political and institutional context.
b. Develop forest land use planning in line with the national land use policy.
c. Harmonize conflicting policies in line with overall national land use policy and forest sector policy, and international commitment of the Government and ensure ground actions.
d. Develop policy measures to control the forestry land use conversion, startup scientific forest management and enhance the forestry sector contributions.
e. Revise the policy and programs of community based forest managements to address their unintended negative effects on distant users, resource sharing, social inequity and traditional use rights of transhumance and transient glaziers.

373. **Develop and integrate land use models with forestry.** Productive, commercial, socially inclusive, agro-forestry production land use models will be integrated into existing forest management practices across the landscape/physiographic region. This will require the following measures:

a. Identify and prioritize the most socially and economically competitive forest products for each of the management regimes across the various landscapes and physiographic regions.
b. Develop multiple use context specific climate change friendly agro forestry modalities for each type of farmer (small to rich farmers).
c. Develop and scale up intensive management model for community based forestry for each landscape/physiographic region actively contributing to productivity of farming system, increasing social, economic and environmental benefits and achieving food security.

374. **Enhance forestry enterprises and marketing development**. This will require the following measures:

a. Improve the value chain of forestry products (timber and non timber) to be promoted for each of management regimes of farm or forests across the landscape/physiographic regions.
b. Identify the role and involve stakeholders in the forestry sector management. Develop public-user-private partnership mechanism with well identified roles and responsibilities.
c. Promote the establishment of agro forestry based enterprises providing emphasis to the poor, community and private sector based on context and appropriateness.

375. **Enhance forestry gender equity and social inclusion (GESI)**. This will require the following measures:

a. Strengthen the implementation of Gender and Social Inclusion Strategy of the forestry sector in all phases of program planning and implementation at all levels from center to the district levels.
b. Restore the degraded lands, enrich the public lands and increase the productivity of low yielding farm lands with appropriate pro poor agroforestry models to achieve the goal of food security, environmental sustainability and poverty alleviations.

376. **Develop biodiversity conservation and climate change adaptation** and mitigation through the following measures:

a. Support the Local Adaptation Plan for Action (LAPA) as implementation support for the National Adaptation Program of Action (NAPA) for climate change and emphasize the role of forestry sector components for adaptation and mitigations.
b. Support revision and implementation of National Biodiversity Strategy and Action Plan (NBSAP) and scale up the interventions on soil conservation and watershed management including measures to promote adoption of Sloping Agriculture Land Technology (SALT), and crop management practices (crop rotation, tillage etc).
c. Develop with policy decision, implement and scale up schemes related to payment of environmental services including carbon sequestrations.
d. Promote use of alternative/renewable energy and energy saving scheme among the local forestry groups

377. **Develop institutional and human resources** for forest governance through the following measures:

a. Restructure the forestry sector based on the new forestry strategy, periodically reorient the staffs and improve the service delivery mechanism.
b. Prepare and implement a comprehensive human resource development plan.
c. Democratize governance system of government, non-government, community and private institutions working in forests sector and making it inclusive, transparent and accountable.

378. **Implement research and extension for sustainable forestry** through the following measures:

a. Develop and implement sustainable forest management research, communication, education and awareness raising strategies for national district and community level.
b. Collaborate between stakeholder agencies by clearly recognizing needs and priorities on forest research and carry out adaptive research with high-quality support from national and sub-national research institutes.
c. Develop extension package on best forestry practices and test. The extension package includes reduction on forest threats including forest encroachment, grazing management, sustainable forest management and improved agricultural practices.

379. **Develop a forestry investment strategy and plan** through the following measures:

a. Develop and implement district forest development funds management.
b. Develop strategy on public private partnership and increase the private sector investment in forestry

c. Develop National REDD plus strategy, Biodiversity Strategy and Action Plan, Strategy on Green Jobs and Investment plan for receiving benefits from regional and international funding schemes.
d. Create conditions for continuous and stable investments in the forestry sector through the process of realization of the new Forestry Strategy.
e. Develop coordination and for planned investments between private and state sectors, international and national donors.
f. Create the favorable climate for investments in the private and state sectors, international and national donors.
g. Improve law enforcement to decrease the negative impact on forest markets and increase the income for the sector that will ensure larger reinvestments in forestry.
h. Co-ordinate with the national and international financial assistance including international funds for support to sustainable forest management, to biodiversity conservation, protective functions of forests, payment of environment services and for carbon sequestration.

380. **Develop joint platform for policy** and actions on ground through the following actions:
a. Join up the work of organizations to map and access policy initiatives for the agriculture and forestry sectors, and identity where the measures exist or are missing.
b. Work to embed a common understanding and language, generate shared messages on the need to adapt, and incorporate new, consistent messages on farming systems and priorities for action
c. Develop better information to help farmers consider the costs and benefits of capital investments that would improve their productivity
d. Build on existing knowledge and research to ensure that agriculture and forestry complementing each other.
e. Develop examples of good working practice and adding value to support decision-making engaging with the forestry user groups looking at existing and future schemes for forestry to support agriculture production.
f. Develop critical capacity in research, expertise and the evidence base.

5.4 Activities Related to Outcome 3: Profitable Commercialization

381. Outcome 3 of the ADS is Profitable Commercialization. The outcome is achieved through 8 outputs and 42 activities illustrated in Table 31 and detailed in the following sections.

Table 31 Activities related to Outcome 3 on Profitable Commercialization

Outcome	Output	Activity		
3				**Profitable commercialization**
	3.1			**Improved investment climate**
		3.1.1		Promote formation of broad-based commercial agriculture organizations
		3.1.2		Increase participation of agribusiness, cooperatives and industry bodies
		3.1.3		Promulgate appropriate regulations
		3.1.4		Level the competitive environment between private sector and state enterprises
		3.1.5		Reform land use policy to stimulate commercial agriculture
		3.1.6		Provide information to assist commercial farming decisions
	3.2			**Contract arrangements for commercial agriculture**
		3.2.1		Strengthen contractual arrangement mechanisms
		3.2.2		Capacity building in commercial agriculture
	3.3			**Tax policy to support commercial agriculture**

Outcome	Output	Activity		
3				**Profitable commercialization**
	3.4			**Agricultural finance and insurance**
		3.4.1		Promote development of agricultural finance and insurance providers
			3.4.1.1	Provide long-term finance through leasing
			3.4.1.2	Promote financial institution viability
			3.4.1.3	Facilitate development of a range of financial products for agriculture
			3.4.1.4	Provide incentives for agricultural finance
			3.4.1.5	Provide training in financial management for farmers
		3.4.2		Promote development of agricultural insurance
			3.4.2.1	Support the insurance industry in implementing the Agricultural Insurance Directive
			3.4.2.2	Promotion campaign to farmers
			3.4.2.3	Pilot a local-level weather indexing scheme
			3.4.2.4	Strengthen technical capacity of MOAD for regional and local level crop forecasting
			3.4.2.5	Pilot scheme for 50% premium subsidy
	3.5			**Competitive agricultural value chains**
		3.5.1		Establish prioritized National Value Chain Programs
		3.5.2		Support to better expedite value chain development
		3.5.3	3.5.3.1	Enhance the development of the DAIRY value chain
			3.5.3.2	Value chain development fund
		3.5.4	3.5.4.1	Enhance development of the LENTIL value chain
			3.5.4.2	Value chain development fund
		3.5.5	3.5.5.1	Enhance development of the MAIZE value chain
			3.5.5.1	Value chain development fund
		3.5.6	3.5.6.1	Enhance development of the TEA value chain
			3.5.6.2	Value chain development fund
		3.5.7	3.5.7.1	Enhance development of the VEGETABLES value chain
			3.5.7.2	Value chain development fund
	3.6			**Rural roads network expanded**
		3.6.1		Update policy for rural roads to explicitly target agricultural roads.
		3.6.2		Establish a new section for agricultural roads in District Technical Office
		3.6.3		Provide separate funding for development and maintenance of agricultural roads.
	3.7			**Agricultural market information**
		3.7.1		Promote development of a suite of products for market information and market intelligence
	3.8			**Rural electrification and renewable energies**
		3.8.1		Establish a separate liaison section especially for power development in MOAD
		3.8.2		Establish a fund to support PPP for power development with farming community

5.4.1 Activities related to Output 3.1 on Improved Investment Climate for Agricultural Commercialization

382. **Promote broad-based commercial agriculture organizations** that could monitor and dialogue with government on improved investment climate for agricultural commercialization. These organizations will be complementary to existing chambers of commerce and their federation, trade associations, cooperative federation etc., in so far as they promote the formation of alliances across the value chain. Their structure could be similar to the Commercial Agriculture Alliance (CAA) in the Eastern Region in terms of broad coverage of actors such as farmer cooperatives, traders, input supplies, and agro-industry. In such a case, the monitoring and advocacy would be for a broader spectrum of commercial agriculture than other existing organizations. The establishment of these commercial agricultural organizations will benefit from a review of strengths and weaknesses of the CAA in the Eastern Development Region. Similar organizations will be promoted in each development region and sub-region (or other alternative to emerge in any future federalist structure).

383. **Increase the participation of farmer's organizations, agribusiness, cooperatives, and industry organizations in sub-sector planning and implementation**.

a. Representatives should be appointed to Steering Committees, CADIC, local planning and implementation bodies, and bodies that advise on regulation of commercial agriculture.
b. Indicators to monitor investment climate should be agreed between the government and relevant organizations representing farmers, cooperatives, and private sector. A working group or sub-committee under CADIC could be held responsible for monitoring these indicators.

384. **Promulgate appropriate regulations** to promote larger scale commercial cooperative farming including enabling:

a. merging of cooperatives across districts or regional boundaries;
b. contract farming;
c. lease farming.

385. **Level the competitive environment between private sector and state enterprises** in the distribution of agricultural inputs and outputs. For example, level playing field in the purchasing and distribution of fertilizer, seed, artificial insemination, milk. This may involve providing the private sector with the same commercial advantages (e.g. subsidies, permits, facilities), or removing these advantages from state enterprises.

386. **Implement the land use policy 2072 to stimulate commercial agriculture** such as on land plotting, land fragmentation, land ceilings, land tenancy, land pooling (see section 5.3.4 on Land)

387. **Provide information to assist commercial agricultural decisions** (e.g. crop gross margin, cash flow analyses, market information, trade related information), through preparation and dissemination of farm management economic information by collaboration between DOA, DLS, research institutes and Department of Agribusiness Promotion.

5.4.2 Activities related to Output 3.2 on Contractual Arrangements for Commercial Agriculture

388. **Strengthen contractual arrangements mechanisms** and promote awareness and demonstration of these regulatory mechanisms for commercial agriculture such as:

a. Enact and implement a *Contract Farming Act* that, *inter alia* includes: (i) Collective bargaining arrangements with multiple small farmers; (ii) Protection of the parties to the contract (farmers against exploitation through credit and accumulation of debt and contractors against unauthorized sales); (iii) Provisions on insurance of crops; (iv) Implementation of the Secured Transaction Act (see below).
b. Implement a *Secured Transactions Act* by establishing a registry of commerce movables as security - to (i) allow farmers to provide future crops as collateral for financing, whether as part of a contract farming arrangements or as collateral for farm credit or inputs; and (ii) allow development of hire-purchase or financial leasing for agricultural market[57] . If implementation of STA proves

[57] In a typical leasing operation, a leasing company serves as the middleman between the financial institution that provides the financing for the purchase of the equipment, and the farmer who leases it, from the leasing company. In order to obtain bank financing the leasing company needs to put up collateral. That collateral is the equipment that is leased to the farmer. Thus the owner of the equipment is the leasing company, the bank has a security interest (collateral) in the equipment and the farmer leases it. In the absence of the registry only land can be collateral (or vehicles that are registered with the motor

impractical,[58] one could amend Chapter 6 of the Contracts Act to ensure a simplified pledge procedure for the pledging of movables as security, including pledge registry.

c. Enact land-lease act (possibly as part of a Contract Farming Act) to provide for a viable alternative to the sharecropping (with concern that tenancy may be re-enacted) and inducing of sale by absentee landlords as well as a basis for agro-business farming arrangements that provides for (i) fair lease contracts (i.a. – fixed fee or reasonable sharecropping ratios); (ii) measures to prevent acquisition of tenancy rights in long-term lease relations; and (iii) ability to secure long-term leases for agro-businesses to enable them to cultivate land for the agro-business.
d. Promote Leasing Operations through: (i) providing for the formation of Leasing Companies to engage in financial leasing of farming equipment, by clarifying that Article 47(1)(d) of the BFIA which stipulates that FIs are permitted to engage in leasing operations does not limit non-FIs from engaging in leasing of farming equipment[59]; and (ii) establishing pledge registry either under STA or by amendment of Contracts Act, as described above.

389. **Capacity building in commercial agriculture**. The promotion of commercial agriculture through improved contractual arrangements, value development, and market intelligence, requires the training and capacity building in key concepts of agricultural commercialization and value chain development. ADS will support capacity building programs delivered in collaboration with farmers and their organizations (groups and cooperatives), agro-enterprises and their organizations, and service providers (government, professional).

5.4.3 Activities related to Output 3.3 on Tax Policy that Supports an Efficient Commercial Agriculture Sector

390. **Develop tax policy supportive of an efficient commercial agriculture sector** through providing subsidies and targeted tax incentives through the commercial transformation period, until the sector has reached a sufficient level of maturity and sustainability that those subsidies and incentives may be phased out. This will replace blanket exemptions with targeted concessions with termination dates (in accordance with the recommendations in IMF Country Report No. 11/319 of November 2011). In the long term the agriculture sector will provide government with an additional source of revenue for mobilization. ADS will support the revision, rationalization, specification of their terms (criteria) and duration (expiry dates), consultation and awareness campaign for all tax incentives and related to commercial agriculture and including the following:

a. Determine and implement specific income tax concessions to (a) stimulate investment in farm plant, machinery and irrigation infrastructure; and (b) promote green technologies and reduce carbon emissions.

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vehicle registration. The equipment cannot be registered as collateral and financing will not be forthcoming to the Leasing Companies. Since financial institutions (FIs) are usually not familiar with leasing operations FIs will not become lassoes.

[58] The STA is a rather complex legislation which may not be suitable as an initial mechanism for using movables as collateral.

[59] The language of Article 47(1)(d) should not prevent non-FIs from engaging in leasing operations, but as the Rastra Bank apparently believes it does, one may have to resort to a legislative (or judicial) clarification that leasing operations may be conducted by non-FIs.

b. Determine and implement tax incentives for the insurance industry to stimulate the growth of agricultural insurance contracts in accordance with the Agricultural Insurance Directive 2069 (2013).
c. Determine and implement tax incentives for the banking industry to stimulate the growth of agricultural loans.
d. Determine and implement changes to the way land is taxed.

5.4.4 Activities related to Output 3.4 on Agricultural Finance and Insurance Providers that supply a variety of competitive and demand-driven financial and agricultural Insurance Products.

391. **Promote development of diverse agricultural finance and insurance providers** that supply a variety of competitive and demand-driven financial and agricultural insurance products. ADS will support implementation of ongoing policies and measures in the finance sector such as:

a. Provide long-term finance through leasing, especially for agricultural equipment and land.
b. Promote financial institution viability:
    i. Support ongoing efforts by NRB to promote consolidation of financial institutions through selective licensing of new financial institutions and through the merger of weak financial institutions.
    ii. Implement the provisions of the Microfinance Act to establish a second-tier regulatory authority for MFIs that will facilitate improved viability and sustainability, and governance, in the microfinance subsector.
c. Facilitate development of a range of financial products for agriculture, subject to prevailing regulations such as Deprived Sector lending regulation, to better serve the diverse needs of agricultural enterprises. For example those based on information and communication technology [ICT]), and products that are readily available in many countries' financial systems but are effectively untried in Nepal such as stock and warehouse receipts.
d. Provide incentives for agricultural finance, to increase participation of financial institutions into the agricultural finance market by:
    i. Provide incentives, if appropriate tied with directives, to promote an increased volume of lending. A good example is the NRB 2011 Directive that 'commercial banks must direct 10% of their total lending to agriculture' – the directive is supported by NRB provision of refinancing facility for agriculture at 6.5%.
    ii. Promote financial institutions to branch into rural centers to gain experience of the needs of rural lenders, better understand agricultural finance and appraise agricultural credit needs. A good example is the present (2013) NRB provision of interest free loans to commercial banks to open rural branches.
e. Provide training in financial management for farmers, cooperatives, agri-entrepreneurs, rural women and rural youth, to enhance agricultural enterprise creditworthiness.

392. **Promote development of agricultural insurance** so that farmers have access to viable crop, livestock and fishery insurance products through the following measures:

a. Support the insurance industry in implementing the Agricultural Insurance Directive 2069 (2013) (Amendment 2016), and make policy adjustment as appropriate to develop viable commercial livestock and crop insurance products.

b. Promotion campaign to farmers on agricultural insurance products, in partnership with insurance industry. These will include: “Commercial Livestock Insurance Scheme (CLIS)”, “Milk Cooperative Managed Livestock Insurance Scheme (MCLIS)” and “Weather Based Crop Insurance Scheme (WBCIS).
c. Pilot a local-level weather indexing scheme in 11 cereal production pockets through support to DHM.
d. Strengthen technical capacity of MOAD for regional and local level crop forecasting risk assessment based on indexing weather patterns with crop yields;
e. Pilot a scheme for 50% premium subsidy (as per the Insurance Board Directive), to kick-start the scheme in the short term, review the premium subsidy and gradually phase it out.

5.4.5 Activities related to Output 3.5 on Competitive Agricultural Value Chains that Increase Value Added and Benefits to Smallholders Farmers and Agroenterprises

393. **Prioritize a limited number of value chains over the first 5 years of the ADS and establish National Value Chain Programs for each of the prioritized value chains**. The prioritized value chain are selected through a process that takes into account the following criteria: (i) Poverty reduction potential; (ii) Growth potential (or potential for increasing growth and access); (iii) Intervention potential; and (iv) Cross-cutting issues (social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread). The prioritized value chains include: dairy, lentil, maize, tea, and vegetables and others identified by NADSIC.

a. For each value chain, identify a Value Chain Program Steering Committee. The Steering Committee will include representatives of the industry related to the specific value chain and include farmer representatives, agribusiness enterprise representatives, and research and extension representatives with specific knowledge about the value chain.
b. The Value Chain Program Steering Committee will select a Value Chain Program Manager. The Program manager will be responsible for coordination of projects and initiatives related to value chain development. The Program manager will prepare a more detailed plan of action and investment for the development of the value chain. The plan of action will be approved by the steering committee and updated regularly.
c. For each value chain, conduct value chain development capacity building activities, with emphasis on markets for the poor (M4P) approach to value chain development, an approach intended to facilitate the emergence of inclusive value chains, namely value chains that benefit the poor.
d. For each value chain program, establish a baseline and targets and monitoring system and conduct regular monitoring.

394. **Support to expedite value chain development** Will involve the combination of the following activities:

a. Facilitate and enable the development of a better working agribusiness environment through a number of government related initiatives such as:
    i. Facilitate establishment of Value Chain Program Steering Committees
    ii. Support the development of suitable policies and regulations for value chains (VCs) through technical assistance support.
    iii. Train MoAD staff in private sector development (PSD) and VC development.
    iv. Increase human resources of the Agribusiness Section of MoAD.

v. Establish and fund PSD coordination subcommittee of NSC for better management/ coordination of commodity/product VC projects and programs.

b. Support to priority VCs niche products, deprived and isolated areas of Nepal, through government targeted support.
   i. Provide technical support to MoAD in development of VC development plans in coordination with the VC Program Manager.
   ii. Develop methodology and expedite district competiveness planning for VCs.

c. Support to private sector initiatives through improved financial support systems.
   i. Technical and management support to MoAD and other entities in the review of financial instruments for VC development.

395. **Enhance the development of prioritized value chains as identified by NADSIC. Nature of the programs and the budget would be similar to the examples of Dairy, Lentil, Maize, Tea and Vegetables studied by the TA team and cited herein.**
For example, the DAIRY value chain through production, marketing and policy/institutional support.

a. Improve milk productivity for smallholder farmers through:
   i. Capacity development of dairy smallholder farmers in improved dairy production technologies.
   ii. Financial and technical assistance to service providers in improved services to dairy smallholder farmers.

b. Strengthen local milk cooperatives, collection centres and improved market linkages through:
   i. Training and financial support to cooperatives and collection centres in improved management practices for better quality milk delivery

c. Improve advocacy and policies for dairy sub-sector through:
   i. Support to local CCI in the establishment of "Dairy Chapters" for better advocacy and market development.
   ii. Support to MOAD, DLS, CCI& Dairy Association in better policy development for the dairy sub-sector.
   iii. Technical assistance support in development of monitoring & knowledge management system.

396. **Enhance the development of the LENTIL value chain** through production, marketing and policy/institutional support.

a. Improve production and productivity of lentil at the farm level through:
   i. Collaboration of NARC, private companies and seed producer groups for increased production and distribution of foundation seeds and certified seeds.
   ii. Training package on improved production practices developed, and lead farmers (LFs) at community level trained on the improved practices to serve the farmers as Local Resource Persons (LRPs).
   iii. Support to the National Grain Legume Research Program to address on the present problems of mineral imbalances and widespread diseases at the farm level.

b. Improve post harvest operations and marketing of lentil through:
   i. Support for farmer groups/cooperatives for collective marketing using cleaning and grading equipment, collection centers, storage facilities and contract farming.

ii. Facilitating linkage/networking with banks in the importing countries through government level negotiation for issuance of letter of credit for timely payment.

c. Improved policies, regulatory framework and institutions for lentil sub-sector through:
   i. Support for establishment of accredited laboratories for certification of quality standard.
   ii. Support for establishment of research unit at the national level within TEPC for market intelligence and market research for export diversification.

397. **Enhance the development of the MAIZE value chain** through production, marketing and policy/institutional support.

a. Improve production and productivity of maize at the farm level through:
   i. Collaboration of NARC, private companies and seed producer groups for increased production and distribution of foundation seeds, certifies seeds, and hybrid seeds.
   ii. Training package on improved production practices developed, and lead farmers (LFs) at community level trained on the improved practices to serve the farmers as LRPs.
   iii. Support activities for increased and judicious use of production inputs (seeds, fertilizers, chemicals and irrigation) for productivity increase, and popularization of improved farm tools, implements and machineries to cope with labor shortage problem.
b. Improve post harvest operations and marketing of maize through:
   i. Support for initiating collective marketing through provision of seed money, and storage facilities at the community level.
   ii. Support and facilitation for improved market linkage with feed and agro-industries through contract farming arrangement.
c. Improve policies, regulatory framework and institutions for maize sub-sector through:
   i. Support through DADO/VDC for establishment of resource centre at VDC /Municipality level with service of Leader Farmers as LRPs
   ii. Support through DADO for establishment of institutional network for community based seed production (OPV)/ seed sourcing (hybrid), and varietal selection at the district level.

398. **Enhance the development of the TEA value chain** through production, marketing and policy/institutional support.

a. Improve production and productivity of tea through:
   i. Facilitate and support the tea grower farmer groups and estates to establish nurseries and quality clone development
   ii. Support for establishment of demonstration plots and training to the farmers for improved practices for quality tea production and increased productivity
   iii. Support for identification and expansion of new tea plantation areas.
   iv. Facilitation and support for technical manpower development (tea tester/technician) in the tea industry.
b. Improve post harvest operations, processing, and marketing of tea through:
   i. Support for promotion of improved packaging material by farmers, and improved transportation of green leaf from farm to factory.

ii. Facilitate in contract production of tea leafs by farmer groups and cooperatives.
iii. Support for technological upgrading of tea factories in the promotion of safety standards, production efficiency and GMPs.
iv. Support for development of small scale tea processing units to the farmers, and group branding.
v. Support for upgrading laboratory facilities and improved packaging.

c. Improve policies, regulatory framework and institutions for tea sub-sector through:
i. Facilitation and support for establishment of central warehouse and auction market under PPP.
ii. Support to the NTCDB for establishment of tea research, development and training center.
iii. Support to TEPC for studies and market intelligence services for tea farmers and entrepreneurs.

399. **Enhance the development of the VEGETABLES value chain** through production, marketing and policy/institutional support.

a. Improve vegetable productivity for smallholder farmers through:
i. Technological guidelines for off-season vegetable production, farmer production training.
ii. Expand introduction of poly-house & micro-irrigation technologies.
iii. Development of off-season vegetable production blocks.

b. Improve post harvest operations and marketing of vegetables though:
i. Promotion of improved grading, packaging and collection centres
ii. Establishment of off-season vegetable call centre for market intelligence

c. Improve policies, regulatory framework and institutions for vegetable sub-sector.

5.4.6 Activities related to Output 3.6 on Rural Roads Network Expanded

400. This will involve systematic efforts focused specifically on rural road and transport network expansion. ADS will support the following activities:

401. **Update policy for rural roads to explicitly target agricultural roads.** This aims to accelerate the program of development of agricultural roads, while improving their quality and maintenance. The policy will:

a. Focus on connecting agricultural production centers to market centers;
b. improve coordination with other agri-market infrastructure programs;
c. clarify division of responsibilities between center and sub-national levels for implementation of the policy.

402. **Establish a new section for agricultural roads in District Technical Office** (DTO) under the DDC headed by a separate Senior Engineer in all 75 districts to implement updated agricultural roads policy.

403. **Provide** separate funding for development and maintenance of agricultural roads. The funding mechanism should involve private sector and communities in the development and maintenance of roads, e.g. via matching grants. The initial fund would cover 5 years of construction at 50km per district, and could be replenished based on satisfactory review.

5.4.7 Activities related to Output 3.7 on Agricultural Market Information and ICT Products for Market Intelligence

404. **Promote the development of a suite of products for market information and market intelligence** using ICT products and involving private sector and incentives for the users to pay. The system of market information and market intelligence must be easily accessible to smallholder farmers, traders, and enterprises. This may involve preparation and implementation of a program coordinated under ADS that will include provision of start-up financing (e.g. matching grants) to private sector, industry organizations, and/or NGOs to establish commercially viable market intelligence products and services using mobile and internet communication technologies. The products and services may be developed and managed by consortium, e.g. between wholesale market authority and ICT systems provider.

5.4.8 Activities related to Output 3.8 on Rural Electrification and Renewable Energies

405. **Support expansion of rural electrification programs through the promotion of renewable energies** (water, solar, wind, biomass, biogas). Involve MOAD in the contribution of financial and technical support to farming communities in collaboration with NEA, AEPC, ESAP etc.

a. Establish a separate liaison section especially for power development in MOAD. Make the section responsible for assisting the farmers' community to: (i) reach NEA, AEPC, ESAP, and National Rural and Renewal Energy Program (NRREP) for power supply (ii) plan, design, procurement, implementation and maintenance and iii) provide financial support (in some cases) for power generation.
b. Establish a fund to support PPP for power development with farming community partners. The fund will be administered by the MOAD power liaison section.

5.5 Activities Related to Outcome 4: Increased Competitiveness

406. Outcome 4 of the ADS is Increased Competitiveness. The outcome is achieved through 4 outputs and 24activities illustrated in Table 32and detailed in the following sections.

Table 32 Activities related to Outcome 4 on Increased Competitiveness

Outcome	Output	Activity		
4				**Increased competitiveness**
	4.1			**Market infrastructure developed and managed**
		4.1.1		Promote development of market infrastructure
		4.1.2		Implement PPP financing support mechanisms
		4.1.3		Capacity building programs for market infrastructure management
		4.1.4		Identify strategic locations for market development and undertake feasibility studies.
		4.1.5		Develop rules and regulations and SOP for improved market management.
	4.2			**Growth of small and medium agro-enterprises**
		4.2.1		Adopt tax incentives to stimulate investment in agro-based enterprises
		4.2.2		Promote establishment of Agribusiness Incubators
		4.2.3		Establish matching grants to promote agro-enterprise innovation
			4.2.3.1	Innovation Fund for Agro-enterprises and Coops
			4.2.3.2	Agro-Entrepreneurship Programs for youth, women, disadvantaged groups and regions
	4.3			**Growth of food and agricultural products exports**
		4.3.1		Strengthen capacity to promote exports and negotiate more favorable trade agreements
			4.3.1.1	Legislative Measures
			4.3.1.2	Promote foreign direct investment in infrastructure and post production activities
			4.3.1.3	Institutional Measures

Outcome	Output	Activity		
			4.3.1.4	International Measures
	4.4			**Enhanced food quality and safety**
		4.4.1		Adopt and implement internationally compatible food quality and safety standards
			4.4.1.1	Legislative Measures for a modern Food Act
			4.4.1.2	Formulation and promulgation of food safety and quality standards
			4.4.1.3	Adopt legislation on accreditation of standards certification bodies
			4.4.1.4	Adopt legislation on accreditation of national laboratories for FSQ certification
			4.4.1.5	Strengthen and upgrade laboratories to international accreditation
			4.4.1.6	Institutional Capacity building (Physical and Human resource) of SPS and quarantine (Plant, food and animal) system.
			4.4.1.7	Establish regional laboratories and district offices for DFTQC
			4.4.1.8	Form Food Agency with authority under Food Act (medium term)
			4.4.1.9	Establish capacity for pest risk assessment, SPS management and surveillance
			4.4.1.10	Adopt *One Health Approach* and strengthen animal health surveillance, diagnostic, and response capacity
			4.4.1.11	Coordination and reporting to subcommittee on FNS and Food Safety of the NADSCC

5.5.1 Activities related to Output 4.1 on Market Infrastructure Developement

407. **Promote development of market infrastructure through the combination of public investment, private and cooperative sector investment**, PPP, and community participation, focused on the development of prioritized value chains. Examples of PPP involving different types of infrastructure include:

a. Promotion of on-farm storage, cool/cold/CA storage
b. Creation of new markets and improvement of existing ones
c. Network of collection centers linked by hub and spoke system to wholesale markets
d. Agroprocessing plants
e. Creation of agroindustrial parks to facilitate access of agroindustry enteprises to land and basic infrastructure to conduct agroprocessing activities.

408. **Implement PPP financing support mechanisms**. Mechanisms appropriate to the size of the investment, the risk involved, and the ownership structure, may be: matching grants; back-end subsidies linked to credit; waiver of initial connection capital costs to government-owned roads (where the waiver period is specified), utilities and services (e.g. power, water, and waste management).

409. **Capacity building programs for market infrastructure management and governance.** One key contributing factor to the effectiveness of PPP investment is the clear delineation of roles of different actors and improved capacity in managing market infrastructure as a part of the supply chain. Hence, any investment in market infrastructure needs to be accompanied by capacity building programs to improve management and governance. Part of this capacity building will also include the software of market management such as price information, market intelligent, and market information systems.

410. **Identify strategic locations for market development and undertake feasibility studies**.

411. **Develop rules and regulations and standard operating procedures for improved market management**.

5.5.2 Activities related to Output 4.2 on Growth of Innovative Small and Medium Agroenterprises

412. **Adopt a number of tax incentives to stimulate investment in agro-based enterprises**, such as:

- a high tax free threshold for income tax to be applied to agro-based enterprises
- a lower income tax rate for income tax to be applied to agro-based enterprises
- accelerated depreciation
- investment allowances
- full deductibility of research and development costs
- carry forward of losses
- graduated level of concessions for developed, under-developed and undeveloped regions
- incentives for foreign investors in agricultural research and development in Nepal in collaboration with national research institutes and domestic companies.

413. **Promote establishment of Agribusiness Incubators** for nurturing the growth of small and medium agroenterprises through support in infrastructure facilities, training and capacity building, networking, advisory services, and access to finance. Agribusiness incubators provide a mechanism for handholding start-up enterprises and to support their growth into sustainable small and medium agroenterprises[60].

414. **Establish matching grants to promote agroenterprises innovations, through a number** of initiatives such as

a. **Innovation Fund for Agro-enterprises and Coops**, oriented to support public private partnerships, and commercial research and development. The core criteria for its usage would be: that the proposal generates "additionality" in outreach to more farmers or primary producers with some form of innovation (product development, process, or technology) that leads to a measurable income increase for producers. Criteria for this scheme would include the need for proposals to have some matching funds (not necessarily 50-50) from the private sector and coops as a way of ensuring that the research had relatively short term impact. This fund would only be available to private entities and coops.

b. Agro-Entrepreneurship Programs for youth, women, disadvantaged groups, and disadvantaged areas. In this case the matching grant will target different groups in rural areas who intend to establish agroenterprises. The matching grant can be combined with an agroentrepreneurship capacity building program. Four Agroentrepreneurship Programs will be promoted:

i. Youth Agro-Entrepreneurship Program
ii. Women Agro-Entrepreneurship Program
iii. Disadvantage Group Agro-Entrepreneurship Program
iv. Disadvantaged areas (e.g. Karnali)

Each agroentrepreneurship program will consist of:

[60] For a review of agribusiness incubators see: Goletti, F., et al. (2011), "*Growing Food, Products and Business, Applying Business Incubation to Agribusiness SMEs."* A publication of the World Bank Group/*info*Dev see http://www.infodev.org/en/Article.800.html

1. A capacity building component in which prospective entrepreneurs are trained and mentored in establishing agroenterprises
2. A competitive matching grant fund through which entrepreneurs can get access to seed money for establishing agroenterprises in rural areas.

415. As experience with other matching grant schemes in Nepal shows (e.g. PACT and HVAP), it is important that during the implementation of these scheme sufficient capacity building and support of local institutions is given to facilitate stakeholders to submit appropriate proposals.

5.5.3 Activities related to Output 4.3 on Growth of Food and Agricultural Products Exports

416. **Strengthen capacity to promote exports and negotiate more favorable trade agreements**, backed by an adequate and functioning import/export regime, including the ability to apply and comply with SPS, AD and CVD measures. ADS will support the following a combination of measures aimed at improving agricultural trade regime.

a. **Legislative Measures** related to trade and foreign investment. Enact a new Trade Act to create an environment that is conducive to exports and regulates imports. The proposed Trade Act will include (i) the regulation of imports in terms of the ability to take fair and non-fair trade protection measures permitted under the WTO regime but not enacted yet, such as measures for BOP reasons, or to counter import of subsidized (CVD) or dumped (AD) products that harm the Nepali producers; and (ii) the formation of an agricultural products export promotion body either as part of the MOCS, Trade and Export Promotion Center (TEPC), or in the MOAD.
b. **Promote foreign investment.** ADS will interact closely with the Ministry of Industry (MoI) and Nepal Investment Board to contribute to improving the investment climate, to facilitate and regulate FDI, and to promote and attract FDI in agriculture sector.
    i. Commission a study on FDI in agriculture in Nepal and other countries in Asia to draw lessons and recommendations to formulate appropriate regulations for FDI in agriculture.
    ii. Enact Investment Acts and regulations that includes the promotion of investments, by providing for incentives for foreign investments in agriculture and agro-businesses.
    iii. However, it will not open the Foreign Direct Investments in the primary production activities to ensure the rights of domestic farmers.
c. **Institutional Measures.**
    i. In the short term, create within MoAD an International Agricultural Trade Division including a section on WTO (currently under the Division of Agribusiness Promotion and Statistics), a section to work as SPS Inquiry Point (currently under DFTQC), a section on International Trade Promotion to serve as a focal point for Nepali exporters of agricultural products, in matters of information about standards, export conditions, export incentives, market intelligence, including developing auction market for strategic commodities (e.g. tea). This section would focus on policy issues differently from the existing program for international trade promotion under the Directorate of Agribusiness Promotion and Market Development under DOA (which focuses more on extension to farmers); similar function needed from Market promotion directorate of

DLS and would coordinate with the Trade Facilitation unit with the MOCS.

ii. In the medium term, additional measures include strengthening trade negotiation capacity through (i) providing training to negotiating teams; (ii) conduct studies on the implication of negotiation agendas; and (iii) institutionalize stakeholder's consultations.

iii. In the long-term, conduct a review and assessment of thepolicy of pegged exchange rate with India and its impact on the agriculture sector in Nepal to provide a critical input into the macroeconomic policy on exchange rate that goes beyond the scope of the ADS.

iv. Undertake a program of capacity strengthening in trade intelligence of Trade Division.

d. **International Measures** for the short and medium-long term.

i. In the short term: engage in dialogue (joint seminars for customs officials) with trading partners on correct implementation of trade agreements.

ii. In the medium-long term, conduct a review of the following aspects of the trade agreements of Nepal: (i) Tariff and quota exempt product coverage in bilateral and multilateral trade agreements of Nepal (reduction of sensitivity list); (ii) Technical barriers to Nepali exports; (iii) Nepali SPS certification recognition by 3rd parties; (iv) Exclude cereals horticulture products from reciprocal duty free list of Nepal India trade treaty; (v) Take out agriculture products from negative list of trading partners under SAPTA; and (vi) Conclude bilateral preferential trade agreements with the countries of the region; (vii) Reducing / eliminating pro-manufacturing bias in tariff structure; and (viii) Reviewing export incentive system.

5.5.4 Activities related to Output 4.4 on Enhanced Food Quality and Safety

417. **Adopt and implement internationally compatible food quality and safety standards.** In order to allow Nepali export products to compete in international markets on the one hand while protecting the Nepali consumers from consuming unsafe food products, the following steps have to be taken:

a. Enact a modern Food Act, prescriptive rather than reactive, that creates an enabling environment conducive to the development of internal trade and export market of agricultural and agro-business products as well as ensures that all foodstuffs sold meet acceptable standards, prevent and punish food adulteration, and promote food traceability. The new Food Act might include provisions on the following matters:

i. The formation of an independent Food Authority that is affiliated to but not part of structure of ministry with authority to issue standards and enforce these, including food quality and safety standards

ii. The stipulation that the Department of Food Technology and Quality Control DFTQC (or the Food Authority once established) is authorized to issue SPS standards for local and exported food products. The authority to issue SPS standards by a simplified procedure in case that the SPS standards are internationally accepted standards, such as those of the *Codex Alimentarius*.

iii. Promotion of private sector quality laboratory services.

b. Formulate, adopt and implement Food Safety and Quality (FSQ) standards that meet international SPS standards to avoid import restrictions by trading partners for SPS reasons. Set numerical goals for proclamation of new standards.
c. Adopt legislation on the accreditation of standards certification bodies;
d. Adopt legislation on the accreditation of national laboratories for FSQ certification;
    i. Establish Nepali accreditation body
    ii. Join ILAC to establish recognition of Nepali accreditation body
e. Strengthen and upgrade to internationally accredited level the following laboratories:
    i. Food Quality Control Laboratory and its regional laboratories under DFTQC
    ii. National Veterinary Diagnostic Laboratory and regional laboratories under DLS
    iii. National Veterinary Quality and Medicine Management Office Laboratory under DLS
    iv. Feed Analysis Laboratory under DLS
    v. National and Regional Plant Protection Laboratories under DOA
    vi. Soil/fertilizer Analysis Laboratories under DOA
    vii. Seed Quality Control Laboratories under DOA
    viii. National Avian Disease Diagnostic Laboratory in Chitwan under DLS
f. Institutional measures in the short term include:
    i. Strengthen the capacity of the DFTQC under the MOAD, in terms of transforming it to become a pro-active rather than reactive body, with annual plans and targets for the proclamation of FSQ standards, enforcement of FSQ standards and public awareness;
    ii. Clarify functions and avoid overlapping between different agencies (for example regulation of animal feed and veterinary drugs could be under the jurisdiction of the DLS or DFTQC).
g. Localize DFTQC by (i) establishing food quality control regional laboratories in all five regions; and (ii) establishing food quality regulation offices in all the districts.
h. In the mid-term:
    i. Form Food Agency under new Food Act with full authority to proclaim FSQ standards and enforcement thereof;
    ii. Establish Nepali accreditation body for laboratory certification.
i. Establish capacity for pest and disease risk lists and preparing and disseminating accepted SPS management for these risks, as well as SPS and surveillance systems.
    i. Strengthen the capacity of the Plant Protection Directorate to better carry out pest and disease surveillance activities, including: (i) crop pest surveillance and pest risk analysis; (ii) diagnostics and taxonomic identification; (iii) post-entry quarantine (PEQ) for seed and other propagative plant materials; and, (iv) response to plant pest and disease outbreaks.
    ii. Plan and implement a sustained program of surveillance on priority crops, with scheduled completion dates. More robust taxonomic identification of survey specimens will be promoted (with regional support, and access to external support for difficult specimens) to expedite the diagnostics component of the survey. Plant Protection

Directorate staff will be given on-the-job training. Upgrade current laboratory and equipment.

iii. Develop standards for phytosanitary measures for different crops, consistent with international standards for phytosanitary measures (ISPM).

iv. Develop early warning system to forecast plant pests and diseases.

j. For animal health, adopt the *One Health Approach*, strengthening surveillance programs involves:

i. Enhance the National Animal Health Center (NAHC)'s TAD surveillance, diagnostic and response capacity. NAHC's ability to survey, test and respond to diseases of economic importance, emerging and reemerging including two priority diseases (FMD, CSF) will be strengthened in target areas with potential for production and exports. The main objective is to improve control of these diseases on a selective geographic basis, while simultaneously strengthening NAHC's generic surveillance and response capacity. Response for FMD and CSF outbreaks will utilize targeted vaccination and movement control measures.

ii. ADS will also support: (i) improved diagnostic capacity and testing (increased testing volumes based on upgraded NAHC equipment, refresher diagnostic training, etc); (ii) a surveillance program in target areas (based development on proper procedures, epidemiology staff training etc); (iii) more frequent and regular surveillance visits and public awareness campaigns; (iv) improved response capacity (and accessing vaccines from regional stockpiles).

k. Ensure effective coordination among the institutions that regulate animal health, plant and food safety (SPS related issues) through periodic coordination meetings and reporting to the subcommittee on Food Nutrition Security and Food Safety of the NADSCC.

5.6 Other Programs

418. Other Programs include ongoing MOAD, MOI, and MOFSC operations. Some of these operations and programs are not included in the Flagship Programs or Core Programs of the ADS. Many MOAD programs are related to the development of specific value chains different from the 5 prioritized value chains of the Flagship Programs. These programs can be supported through access to resources made available in the research and entrepreneurship matching grant funds (funds under NARF and INAGEP).

419. Some of the ongoing MOAD Other Programs are likely to be completed during the early years of ADS. If the evaluation of Other Programs shows promising national impact then these programs could become part of future Flagship or Core Programs.

Table 33 Other Programs

Sector	Program	Comment
Crop	Apple development program	
	Lemon Mission	
	Pomegranate Production program	
	Mango Development in eastern region and Nursery Development	
	Flower Development	
	Orange Orchard strengthening program	

	Support to Tea and Coffee cooperatives	Tea might include in Flagship programs
	Special program for Cardamom and Ginger	
	Virus free plant production for Cardamom	
	Onion Mission	
	Plant protection program	May be incorporated in Core programs on Productivity
	Industrial entomology	
	Mushroom Program	
	Industrial crop program	Irrigation in Core programs
	Indigenous crop promotion	Seed policy in Core programs
	Seed Production (DISSPRO)	Implementation of seed policy in Core programs
	Oilseed crop	Irrigation in Core programs
	Soil testing and improvement service	May be incorporated in core programs on fertilizer
Livestock and Fisheries	Silk Development Program	
	Fish development program	
	Animal health service program	In Core programs on Productivity
	Livestock development program	In Core Programs on Productivity (forage, breeds), and Flagship (possibly dairy)
	Livestock Market Development	In Core programs on Governance and Competitiveness
Agribusiness	Agribusiness and market development	In Core programs on Productivity and Competitiveness
Irrigation	Completion of current irrigation projects; MOI operations and maintenance; other programs	Some in core programs on productivity and Value Chain Flagship
Forestry	MOFSC Operations and other programs	Some in core programs on productivity

6 COSTS

6.1 Approach to Cost Estimation

420. The costs to implement the ADS Action Plan for the first 10 years (2014-2023), are estimated to be $5,282million (Rs 501.8 billion) in total. This amount covers implementation of the 232 activities specified in chapter 5. The activities are grouped and costs estimated under the 35 outputs the sets of activities are expected to produce. The costs reported in this chapter are constant price estimates. The costs have mostly been estimated from the bottom up – including for example:

- Farmers' production models (e.g. based on average farm size, cropping pattern and yield),
- Stakeholders' existing plans (e.g. Department of Irrigation plans for surface irrigation expansion),
- Stakeholders' aspirations of scale (e.g. agricultural extension services to eachVDC and Municipality)
- Statistics of rural population, women and disadvantaged groups,

421. Unit costs have been based on evidence from within Nepal, or if unavailable from a similar context abroad, for example:

- Historic costs (e.g. cost per hectare of irrigation constructed in completed or ongoing projects)
- Current prices (e.g. agricultural machinery)
- Normative costs (e.g. monthly salary for Junior Technician or government official)
- Specialist estimates (e.g. program for breeder seed multiplication)
- Generic estimates (e.g. training courses, or the cost to establish a research station)

422. The summary of ADS costs by component program is in Table 34.

Table 34: ADS Action Plan 10-year Cost Summary

	FANUSEP flagship 1	DESTEP flagship 2	VADEP flagship 3	INAGEP flagship 4	TOTAL FLAGSHIP	CORE PROGRAMS	OTHER PROGRAMS	TOTAL	PERCENT
Governance	323	-	-	-	323	111	-	434	8
Productivity	-	662	-	-	662	1,300	-	1,962	37
Commercialization	-	-	766	-	766	226	-	992	19
Competitiveness	-	-	-	205	205	208	-	413	8
Other Programs							1,482	1,482	28
TOTAL USD million	**323**	**662**	**766**	**205**	**1,955**	**1,845**	**1,482**	**5,282**	**100**
TOTAL Rs billion	**30.66**	**62.88**	**72.73**	**19.48**	**185.75**	**175.27**	**140.81**	**501.83**	
Percent	6.1%	12.5%	14.5%	3.9%	37.0%	34.9%	28.1%	100.0	

423. The approach taken to cost estimation and structuring of the activity-cost groups is based on a number of principles including:

- The unit costs need to be adequate for the envisaged activity to be completed;
- Similar activities and their costs are complimentary, not duplication;
- New initiatives, such as voucher scheme for agricultural inputs, are included as pilot project costs (i.e. costs for possible nation-wide expansion will be subject to performance assessment and is not included);

- The target output quantities are feasible, based on existing and anticipated improved capacity (e.g. technical offices recommended that 5km of agricultural roads per year in each district is a feasible rate of construction);
- Cost sharing mechanisms between public and private sectors, are not intended as ongoing subsidy, but will be limited-term measures intended to share initial capital requirements, support restructure, or to stimulate growth to a sustainable level (e.g. tax incentives for 3 years to promote agricultural mechanization industry, or matching grants for infrastructure);
- Contribution from private sector, farmers and cooperatives strengthens responsibility for achievement of outputs as well as sustainability of private goods and services;
- Costs of tax incentives are limited to the administrative cost of adjusting tax regulation, but do not include any estimate of revenue forgone, or revenue generated;
- Recurrent costs of government operation, such as existing staff costs are not included, whereas incremental staff costs are included (e.g. increased number of women junior technicians).

6.2 The Detailed Costs

424. Considering the costs for each of the 35 outputs that are grouped under the four outcomes, is a way to give more insight into which outputs and activities are more costly and which are less so (Table 38). Detailed costs for each of the 232 activities are included in APPENDIX 4, which is intended to be a guide that implementing agencies can use to when they subsequently carry out the detailed design and planning of ADS activities. The detailed costs also identify and quantify the outputs and required resource inputs for each activity. The quantities indicate the scale or scope, for example some activities are limited to central or agency level, while others are intended to be implemented in all 75 districts and related VDCs. These considerations will be relevant to Government and development partners in their portfolio planning, resourcing and execution.

425. Many of the activities in the Core Program are supporting the continuation of existing activities and plans of agencies. Some high cost items are obvious, for example under Core Programs: Productivity there is a large cost for implementing the irrigation plan because it is large scale (e.g. complete 80,000 ha of ongoing surface irrigation projects; the construction to date cost $4,000/ha; total therefore $320,000,000). Similarly for agricultural roads under Core Programs: Commercialization, although the cost estimate under ADS is to start with only 3,750km (50km per district), out of 23,000km requirement identified by MOAD, as this was considered feasible based on the construction rate achieved by MOAD and DOLIDAR in recent years. Strengthening coordination and participation under Core Programs: Governance, are supported with the cost of stakeholders getting to and conducting meetings to plan, coordinate, and review activities. While each coordination group is funded with only $500 for a minimum of four meetings a year, the total may seem large because there are 75 district and five regional committees, and the funding is for 10 years.

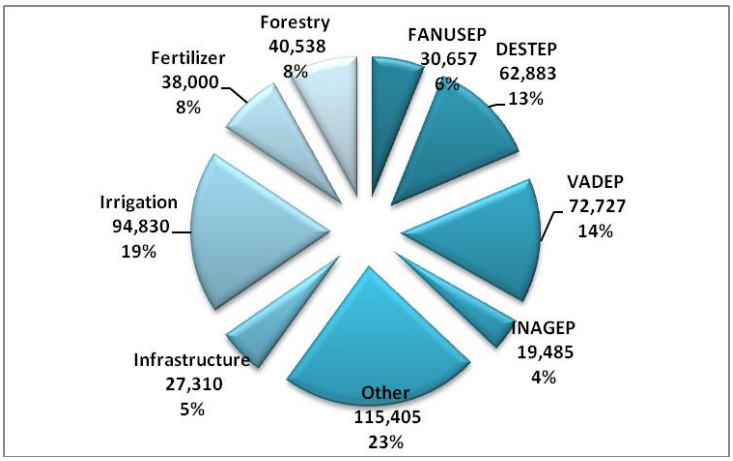


Figure 15 Composition of ADS Costs (Rs million)

6.3 Flagship and Core Programs: Complement not Duplicate

426. The activities and costs under Core Programs compliment the Flagship Programs, but have a different specific output target and scope. For example market infrastructure (Output 4.1), is obviously important for the five prioritized commodities in the Value Chains Development Program (VADEP), but market infrastructure is also required for other priorities also such as to construct a VDC multi-purpose market facility, or municipal wholesale market premises. Irrigation, roads, power and many other activities are similar. The cost structure is therefore intended to be complementary rather than duplication.

427. Flagship programs are mechanisms to bring together outputs and activities that involve multiple stakeholders and agencies. Some of the activities under Core Programs will complement the Flagship Programs. All of the activities under Governance will contribute to the success of the Flagship programs, while others may be more specific. For example VADEP, will develop the full value chain of prioritized commodities. The value chain includes seed production, effective input supply, extension and advisory services to farmers, access to finance, mechanization, market infrastructure and processing capacity, taxation, contract and commercial legal arrangements, export promotion, and quality enhancement. While Core Programs have cost provision for many of these activities, VADEP provides resources earmarked specifically for the prioritized value chains. This ensures there are adequate resources allocated to successfully develop the prioritizedvalue chains.

6.4 Financing by Private Sector, Community, Cooperatives and Farmers

428. Agriculture is an economic activity, and three of the four ADS outcomes involve private sector financial contributions to the activities. 'Private sector' in the economists' view includes the stakeholders that get a private benefit from an economic activity: therefore this includes any kind of private enterprise, company, cooperative, individual farmer, peasant, trader or laborer.

429. Financing arrangements for many of the ADS activities that generate economic activity include cost sharing or public-private partnerships. Overall the ADS expects $600 million (Rs 57 billion) contribution from the private sector, which is 11 percent of the total ten-year cost (Table 35). The largest contributions from private sector are obviously for activities involving increased productivity and commercialization. Equally obvious, governance activities are fully financed by government. Many activities to enhance competitiveness are also government responsibilities such as trade and agri-food safety and quality regulation.

Table 35: Financing by Public and Private Sectors

ADS		Costs USD million			
Outcome		Govt, Donor	Private, Community	Sub-total	percent
1	Governance	433	0.9	**434**	8
2	Productivity	1,823	140	**1,962**	37
3	Commercialization	613	378	**992**	19
4	Competitiveness	333	80	**413**	8
5	Other Programs	1,482	-	**1,482**	28.1
	TOTAL	4,683	600	**5,282**	100
	percent	89%	11%	100.0%	

6.5 ADS Costs and Government Budget for Agriculture

430. There has been some increase in budget expenditure allocation to agriculture sector over recent years. Indications[61] for 2016-17 budget are reported here for a comparison with the proposed costs of the ADS.The MOF presents budgeted amount in different forms: by 'Economic Activity: Agency Allocation' (**Table 36**); by functional group; and other forms (e.g. by targeting to poverty, gender equity, etc.). We therefore use this budget to make some observations and comparisons with the costs of ADS.

Table 36: Indicative Agriculture Budget by Economic Activity - related agencies 2016-17

Budget Head	Planned Expenditure Rs'000			Planned Expenditure USD		
	Recurrent	Capital	Total	Recurrent	Capital	Total
MOAD	23,615,570	3,822,691	27,438,261	224,649,882	36,364,444	261,014,326
MOFSC	8,634,497	5,137,699	13,772,196	82,138,129	48,873,835	131,011,964
MOI	1,442,828	23,019,277	24,462,105	13,725,315	218,977,474	232,702,789
MOLPD	6,529,515	1,936,046	8,465,561	62,113,884	18,417,193	80,531,077
MOLRM	3,200,819	1,056,862	4,257,681	30,448,709	10,053,703	40,502,411
Total		34,972,575		413,075,918	332,686,649	745,762,567

[61]MOF (2016) Red Book

	43,423,229		78,395,804			

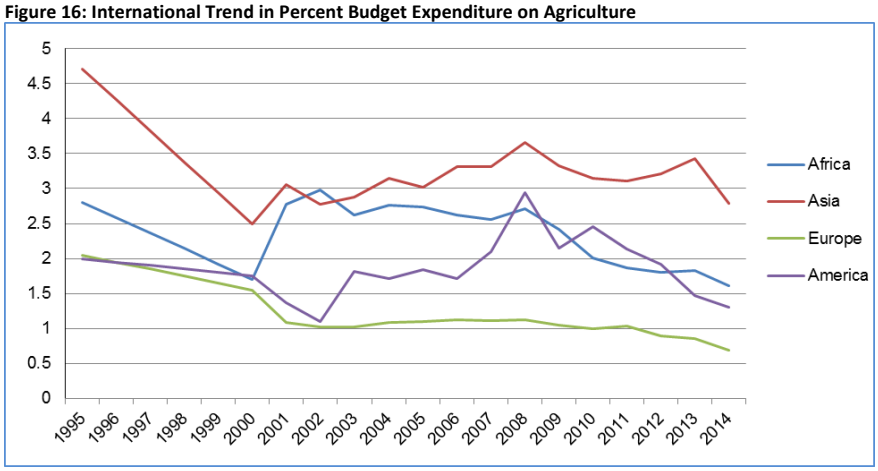
Source: Red Book (2015/16), Ministry of Finance

431. ADS will have a slight impact on the overall government Budget. The 2013/14 Budget for agriculture is expected to be about Rs 78 billion ($ 746 million) per year including both capital (Rs 35 billion) and recurrent (Rs 43 billion) expenditure. The total is about eight percent of total budget expenditure.

432. The ADS inclusive of most current operations and programs will cost Government an average of Rs 44.5 billion/year[62] in the 2010 prices., but not all can be considered additional to the existing recurrent and capital Budget amount. Annual costs of Rs 18 billion ($188 million[63]) are included in ADS as well as the 2013/14 Budget, so the additional annual ADS cost will be Rs 26.5 billion (ADS Rs 44.5 billion, less Rs 18 billion already included) ($214 million). This implies an annual Budget for agriculture inclusive of ADS program (funded by government and donors) of about Rs 66 billion ($695 million)[64], increasing agriculture's share of Budget from 10% to perhaps 16% of the total. The increase in the annual Budget is manageable with assistance from development partners, and represents a 65% increase relatively to the Budget 2013/2014.

433. Internationally, governments have increased spending on agriculture since the 2006 food price crisis; such spending built up till 2010 and has tended to fall thereafter (Figure 16).

Figure 16: International Trend in Percent Budget Expenditure on Agriculture



Source: For 1995 and 2000, visualization and interpolated for 1996 to 1999; For 2001 to 2014, FAOSTAT online statistics database[65]

[62] i.e. not including Rs 5.7 billion funded by private sector and communities.

[63] The major cost items included in ADS and 2011/12 Budget which should not be double counted are: i) fertilizer subsidy (approximately Rs 3.8 billion ($40 million)), (ii) completion of ongoing surface irrigation schemes that have funding in place (approximately Rs 5.9 billion ($62 million)); forestry programs (approximately Rs 7.3 billion ($77million)), and ongoing agriculture programs (approximately Rs 1 billion ($9.6 million)). Total of these costs is Rs 18 billion ($188 million).

[64] i.e Rs 40 billion 2013/14 plus Rs 26 billion net annual ADS totals Rs 66 billion.

[65] Source: http://www.faostat3.fao.org/download/I/IG/E

434. ADS includes mostly capital, rather than recurrent expenditure. The amount of government budget that is recurrent and capital varies across agencies, but overall the majority of expenses are for recurrent functions. Expenditure by MOI is predominantly capital for construction and maintenance of irrigation infrastructure, while MOAD expenditure is predominantly for recurrent agricultural inputs (particularly fertilizer subsidy) and services. Capital expenditure is generally recognized as a driver of economic growth. ADS will provide capital, developmental expenditure, complementary to the current budget composition.

435. There is rationale and scope to increase the budget concentration on agriculture. Agriculture contributes about 36 % of Nepal's GDP and allocates 8% of its budget to agriculture in 2005 (Table 37). Dividing the agricultural budget by agricultural GDP gives a measure of the budget's orientation to agriculture. In a rich country highly dependent on agriculture the ratio may be close to 1. India has a much more diverse economy, but budget orientation of 0. 27 in 2005, which increased to 0.32 by 2013[66] compared to Nepal's 0.23 in 2005, which increased to 0.42 by 2013. In a study of 11 countries in Asia[67], the budget orientation to agriculture was 1.5, far greater than in Nepal. While real budget expenditure in Asian countries grew by 4.4% between 1980 and 2002, the trend has been a decline in agriculture's share of government expenditure at a greater rate than decline in agriculture's contribution to GDP.

Table 37: International comparison of budget orientation to agriculture

Country	Year 2005			Year 2013		
	Agricultural GDP	Agricultural Budget	Budget Orientation to Agriculture	Agricultural GDP	Agricultural Budget	Budget Orientation to Agriculture
Nepal	36.35%	8.23%	0.23	35.04%	14.81%	0.42
India	18.81%	4.98 %	0.27	18.63%	6.0 0%	0.32
China	11.73%	7.22	0.62	9.41%	9.50%	1.01
Asia (11 countries)*	6.00%	9.00%	1.50	10.23%	9.17%	0.90

* Eleven countries of Asia includes Bangladesh, China, India, Indonesia, Korea, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka and Thailand

Sources: FAO STAT (2016), World Bank WDI (2016), China Statistical Year Book, http://www.stats.gov.cn/ (2006 & 2014), Asia Development Bank (2015) & Center for Economic and Social Development, https://myanmarcesd.org/ (2016)

436. Clearly the costs of ADS will require expenditure to be allocated across multiple agencies, and requires longer-term commitment than annual budget. Therefore the ADS will adopt a financing mechanism such as a Trust Fund, of which there are existing examples (e.g. Nepal Peace Trust Fund, Poverty Alleviation Fund). ADS will also follow Ministry of Finance reforms that allocate budget against agencies' approved multi-year business plans. The measures will facilitate an increase in the grant and loan financing of budget, which is currently around 24 percent.

[66] Source: Union Budget 2013-14, MOF India had referred to data for year 2010; but data from FAOSTAT for 2005 has been used here for comparability.

[67] S. Akroyd and L. Smith, 2007. Review of Public Spending to Agriculture, DFID/ World Bank Study, Oxford Policy Management, London UK. This study used data pertaining to year 2005.

437. Another issue for Nepal is whether the government – and private, cooperative and farmer partners – have the absorptive capacity for increased spending in agriculture. Effective governance is the critical factor in this issue, and ADS has prioritized governance, including strengthened mechanisms for stakeholder participation and consensus in planning and implementation, in the ADS design to improve absorptive capacity. At the January 2013 and February 2015 Nepal Portfolio Performance Review held by MOF, the need to improve absorptive capacity was apparent in sectors dominated by large projects, notably the energy sector. Agriculture and irrigation funded by ADB showed a ratio of contract award to disbursement of 83-90%. World Bank's disbursement ratio was heavily impacted by lack of stakeholder consensus in implementation of large projects, as well as the inability of the government to implement a full budget in 2012-2013 to 2014-15.

Table 38: ADS Action Plans Cost by Output and Proposed Implementing Agency

ADS ACTION PLANS			Implementation	10-yr COSTS SUMMARY BY OUTCOME			
				Costs Rs million			
Outcome	Output		Main Agencies	Govt, Donor	Private, Community	Output total	Outcome total
1		**Improved Governance**		**41,100**	**87**	**-**	**41,187**
	1.1	Credibility of policy commitment and farmers' rights	MOAD	331	11	342	-
	1.2	Improved coordination in ADS implementation	NPC, MOAD	761	-	761	-
	1.3	Integrated planning	NPC, MOAD	105	-	105	-
	1.4	Effective implementation support	NPC, MOAD	669	-	669	-
	1.5	Mechanisms established for gender equality and social and geographic inclusion	MOAD, MOCPR	2,043	-	2,043	-
	1.6	Timely and effective monitoring and evaluation	MOAD	1,620	76	1,696	-
	1.7	Mechanisms established for participation of civil society	NPC, MOAD	1,663	-	1,663	-
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	NPC, MOAD	2,446	-	2,446	-
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	MOAD, FANUSEP	30,657	-	30,657	-
	1.10	Performance-based management system with rewards to the performers established	MOAD	808	-	808	-
2		**Higher Productivity**		**173,073**	**13,283**	**-**	**186,356**
	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP, CAESC	46,313	1,924	48,237	-
	2.2	Decentralized research system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP, CAESC	9,749	-	9,749	-
	2.3	A strengthened agricultural education system	MoEdu, DESTEP	4,779	119	4,897	-
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	MOLRM	3,090	-	3,090	-
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	MOI	57,518	8,051	65,569	-
	2.6	Timely access to quality agricultural inputs at affordable price.	MOAD	57	-	57	-
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	MOAD	815	411	1,226	-
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	MOAD, MOF	41,337	2,197	43,534	-
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	MOAD	496	297	793	-

ADS ACTION PLANS			Implementation	10-yr COSTS SUMMARY BY OUTCOME			
				Costs Rs million			
Outcome	Output		Main Agencies	Govt, Donor	Private, Community	Output total	Outcome total
	2.10	A range of mechanization options accessible to farmers through the private sector.	MOAD, MOCS	1,120	166	1,286	-
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	MOAD, MOEnv	3,420	-	3,420	-
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	MOAD, MOEnrgy	404	119	523	-
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	MOFSC	3,976	-	3,976	-
3		**Profitable Commercialization**		**58,248**	**35,953**	**-**	**94,201**
	3.1	Improved investment climate for agricultural commercialization	MOAD, MOF	147	36	182	-
	3.2	Contract arrangements for commercial agriculture	MOAD, MOCS	766	-	766	-
	3.3	Tax policy that supports an efficient commercial agriculture sector	MOF, MOAD	6	-	6	-
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	NRB, Insurance Board,MOAD	212	86	298	-
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	VADEP, VCDAs	44,793	27,935	72,727	-
	3.6	Rural roads network expanded	DOLIDAR, MOAD	6,379	6,234	12,613	-
	3.7	Agricultural market information and ITC products for market intelligence.	MOAD	238	238	475	-
	3.8	Expanded rural electrification and renewable energies	MOEnrgy	5,710	1,425	7,135	-
4		**Increased Competitiveness**		**31,640**	**7,636**	**-**	**39,276**
	4.1	Market infrastructure developed	MOAD, MLD	3,964	3,598	7,562	-
	4.2	Growth of innovative small and medium agribusiness enterprises	INAGEP	15,447	4,038	19,485	-
	4.3	Growth of food and agricultural products exports	MOAD, MOCS	502	-	502	-
	4.4	Enhanced food quality and safety	MOAD, MOH	11,728	-	11,728	-
5		**Other Programs**	MOAD	**140,814**	**-**	**140,814**	**140,814**
		TOTAL		**444,875**	**56,959**	**-**	**501,835**

6.6 Schedule of Costs

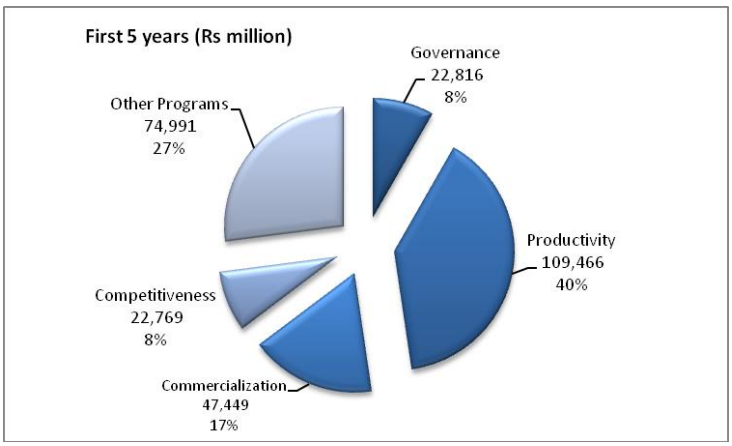
438. ADS outputs and the costs for the activities have been scheduled into the two subperiods: first five years and second five years (Table 39). Implementing the ADS is expected to require slightly more expenditure in the first five years (55.3%), than in the second five years (44.7%). The cost schedule for each of the activities is detailed in APPENDIX 4, and summarized by activity output in**Table 40**.

Table 39: Costs over Five Year Periods by Outcome (Rs million)

Outcomes	First 5 years 2015-2019	Second 5 years 2020-2024	Total
Governance	22,816	18,372	41,187
Productivity	109,466	76,891	186,356
Commercialization	47,449	46,752	94,201
Competitiveness	22,769	16,506	39,276
Other Programs	74,991	65,823	140,814
Total	277,491	224,344	501,835
Percent	55.3%	44.7%	

439. In the first five years there are greater expenses particularly for:

- Governance: support for reforms including legislation, regulation, standards, strengthening farmers' rights, and food security;
- Productivity: including capacity building for farmers and service providers, facilities, and irrigation;
- Current other programs which will be completed, incorporated into ADS core and flagship programs, or phased out (Figure 17).



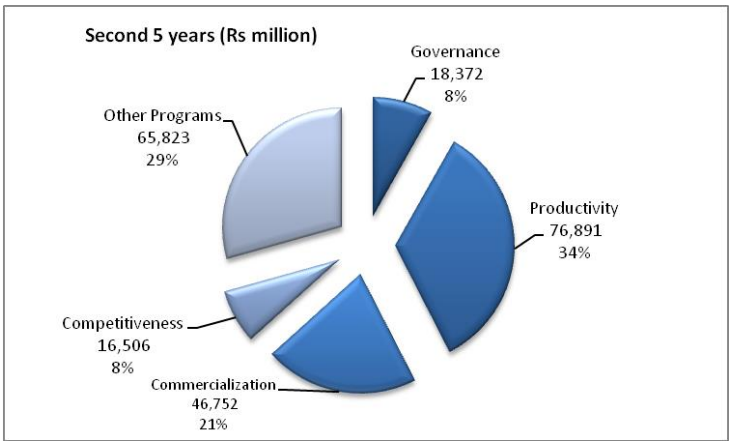


Figure 17: Cost Portions by Five Year Periods

Table 40: Costs over Five Year Periods by Output(Rs million)

Outcome	Output		Costs Rs million)		
			First 5 yrs 2015-2019	**Second 5 yrs 2020-2024**	**Total**
1		**Improved Governance**	22,816	18,372	41,187
	1.1	Credibility of policy commitment and farmers' rights	342	-	342
	1.2	Improved coordination in ADS implementation	405	356	761
	1.3	Integrated planning	52	52	105
	1.4	Effective implementation support	502	167	669
	1.5	Mechanisms established for gender equality and social and geographic inclusion	1,026	1,017	2,043
	1.6	Timely and effective monitoring and evaluation	1,394	302	1,696
	1.7	Mechanisms established for participation of civil society	831	831	1,663
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	1,734	713	2,446
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	15,723	14,934	30,657
	1.10	Performance-based management system with rewards to the performers established	808	-	808
2		**Higher Productivity**	109,466	76,891	186,356
	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	26,625	21,613	48,237
	2.2	Decentralized research system responsive to farmers and agroenterprises' needs	9,749	-	9,749
	2.3	A strengthened agricultural education system	3,401	1,496	4,897
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	1,760	1,330	3,090
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	36,000	29,569	65,569
	2.6	Timely access to quality agricultural inputs at affordable price.	57	-	57
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	1,226	-	1,226
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	23,703	19,831	43,534
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	793	-	793
	2.10	A range of mechanization options accessible to farmers through the private sector.	1,286	-	1,286
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	2,518	903	3,420
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established	285	238	523

Outcome	Output		Costs Rs million)		
			First 5 yrs 2015-2019	**Second 5 yrs 2020-2024**	**Total**
		and adopted.			
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	2,064	1,912	3,976
3		**Profitable Commercialization**	47,449	46,752	94,201
	3.1	Improved investment climate for agricultural commercialization	182	-	182
	3.2	Contract arrangements for commercial agriculture	386	380	766
	3.3	Tax policy that supports an efficient commercial agriculture sector	6	-	6
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	298	-	298
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	36,390	36,338	72,727
	3.6	Rural roads network expanded	6,379	6,234	12,613
	3.7	Agricultural market information and ITC products for market intelligence.	238	238	475
	3.8	Expanded rural electrification and renewable energies	3,572	3,563	7,135
4		**Increased Competitiveness**	22,769	16,506	39,276
	4.1	Market infrastructure developed	3,928	3,634	7,562
	4.2	Growth of innovative small and medium agribusiness enterprises	9,747	9,738	19,485
	4.3	Growth of food and agricultural products exports	264	238	502
	4.4	Enhanced food quality and safety	8,830	2,898	11,728
5		**Other Programs**	74,991	65,823	140,814
			-	-	-
		TOTAL	277,491	224,344	501,835

6.7 ADS Recurrent and Capital Costs

ADS costs are estimated as 47% recurrent and 53% capital expenditure (

440. **Table 41**). The main types of recurrent costs are for human resources, fertilizer subsidy, regulatory reforms and capacity building for farmers and service providers, and research and extension. The main types of capital costs are for infrastructure (irrigation, roads, facilities construction and rehabilitation), plant and equipment, and establishment of fund capital (e.g. NARF, Innovation Fund). A more detailed description is in **Table 42**. Recurrent costs are relatively higher for Productivity (major recurrent items are fertilizer subsidy and capacity

building), while capital costs are higher for Governance, Commercialization and Competitiveness (**Figure 18**).

Table 41: Summary of Recurrent and Capital Costs

Summary of Expenditure by Type	Rs million		
	Recurrent	Capital	Total
Governance	17,237.8	23,949.5	41,187.3
Productivity	101,946.4	84,409.9	186,356.3
Commercialization	32,831.3	61,370.0	94,201.3
Competitiveness	13,945.6	25,330.0	39,275.6
Other Programs	69,346.5	71,467.8	140,814.3
Total	235,307.5	266,527.2	501,834.7
Percent	47%	53%	

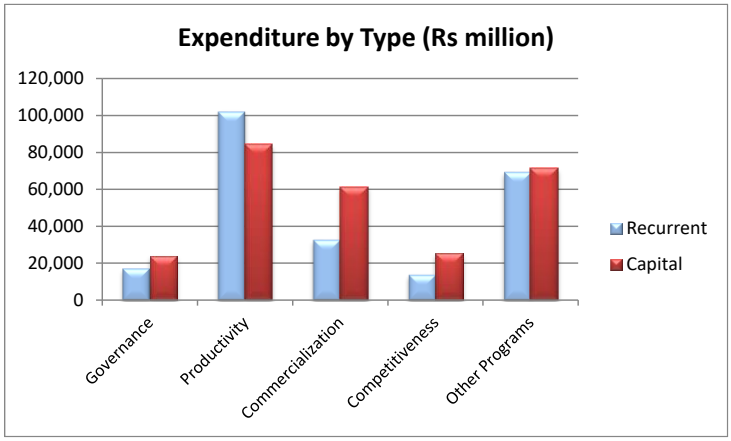


Figure 18: Summary of Recurrent and Capital Costs

Table 42: Recurrent and Capital Costs by Output

Output	10-yr COSTS SUMMARY	Costs Rs million				
		Recurrent	Capital	Total	Major recurrent expenses	Major capital expenses
	Improved Governance	17,238	23,950	41,187		
1.1	Credibility of policy commitment and farmers' rights	342	-	342	Awareness campaigns, legislation, review	
1.2	Improved coordination in ADS implementation	761	-	761	Central, regional and district operations	
1.3	Integrated planning	105	-	105		
1.4	Effective implementation support	669	-	669	Technical assistance	
1.5	Mechanisms established for gender equality and social and geographic inclusion	2,043	-	2,043	District GESI staff and training	
1.6	Timely and effective monitoring and evaluation	1,696	-	1,696	Agricultural Census	
1.7	Mechanisms established for participation of civil society	1,663	-	1,663	District information centres	
1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	2,209	238	2,446	Capacity building	Construction of facilities and equipment
1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	6,945	23,712	30,657	Activities including demonstrations, inputs, food distribution, monitoring, safety net	Facilities and equipment, for example small irrigation, warehouses, collection centers, market facilities at the village level; also small processing equipment
1.10	Performance-based management system with rewards to the performers established	808	-	808	pilot project	
	Higher Productivity	101,946	84,410	186,356		
2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	39,640	8,598	48,237	Capacity building, demonstration inputs, salary support	Facilities and equipment at agriculture and livestock centres, sub-centers and CAESC; equipment for demonstrations;

Output	10-yr COSTS SUMMARY	Costs Rs million				
		Recurrent	Capital	Total	Major recurrent expenses	Major capital expenses
2.2	Decentralized research system responsive to farmers and agroenterprises' needs	11	9,738	9,749		Construction, equipment, research fund
2.3	A strengthened agricultural education system	2,997	1,900	4,897	Educational supplies, ICT, etc	Construction of facilities and equipment
2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	620	2,470	3,090	legislation and administration	Land rehabilitation, equipment
2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	12,189	53,381	65,569	Capacity building, demonstrations, administrative support	Construction and equipment
2.6	Timely access to quality agricultural inputs at affordable price.	57	-	57	policy and voucher scheme regulation	
2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	596	629	1,226	capacity building, regulation, research	Construction of facilities and equipment
2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	39,971	3,563	43,534	fertilizer subsidy, demonstrations, training, research	Construction, equipment, reserve stock
2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	200	594	793	capacity building, regulation, research	Construction of facilities and equipment
2.10	A range of mechanization options accessible to farmers through the private sector.	823	463	1,286	tax incentives, capacity building	Farm machinery
2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	1,235	2,185	3,420	research, capacity building, inputs	Welfare fund
2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	523	-	523	capacity building	Disaster fund, reserve stock, equipment and construction

Output	10-yr COSTS SUMMARY	Costs Rs million				
		Recurrent	Capital	Total	Major recurrent expenses	Major capital expenses
2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	3,085	891	3,976	capacity building, research, materials	Land conservation works, equipment
	Profitable Commercialization	32,831	61,370	94,201		
3.1	Improved investment climate for agricultural commercialization	182	-	182	regulation	
3.2	Contract arrangements for commercial agriculture	766	-	766	farmer capacity building	
3.3	Tax policy that supports an efficient commercial agriculture sector	6	-	6		
3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	298	-	298	loan finance, capacity building	
3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	31,117	41,610	72,727	Capacity building, demonstrations, research	Collection centers, processing facilities, small irrigation, equipment, etc. at VDC, District and regional level
3.6	Rural roads network expanded	73	12,540	12,613		Road construction
3.7	Agricultural market information and ITC products for market intelligence.	380	95	475	Information services	Construction of facilities and equipment
3.8	Expanded rural electrification and renewable energies	10	7,125	7,135		Energy infrastructure
	Increased Competitiveness	13,946	25,330	39,276		
4.1	Market infrastructure developed	437	7,125	7,562	planning, regulation, training	market infrastructure
4.2	Growth of innovative small and medium agribusiness enterprises	8,370	11,115	19,485	Youth, women and disadvantaged, for example capacity building, business development support	Construction of facilities and equipment for business incubators and PPP
4.3	Growth of food and agricultural products exports	312	190	502	regulation, capacity building, international negotiation	Construction of facilities and equipment

Output	10-yr COSTS SUMMARY	Costs Rs million				
		Recurrent	Capital	Total	Major recurrent expenses	Major capital expenses
4.4	Enhanced food quality and safety	4,828	6,900	11,728	regulation, standards, certification and capacity building for farmers, agribusiness and services	Construction of facilities and equipment including for laboratories and border biosecurity
	Other Programs	69,347	71,468	140,814	staff costs, demonstrations, research	Irrigation, soil conservation, facilities and equipment
		-	-	-		
	TOTAL	**235,308**	**266,527**	**501,835**		

6.8 Costs by Subsector

An indicative estimation of ADS costs allocated by subsector (crops, livestock, fisheries, forestry, irrigation, research, infrastructure, and other) shows that 84% of expenses will be for development of crops, irrigation, forestry and livestock subsectors (

441. **Figure 19**). For each ADS outcome the total by subsector and is provided in **Table 43**, and in more detail by activity output in**Table 44**, however the reader should be aware that these allocations are intended as a guide only. Some costs for items such as for food and nutrition security, extension and capacity building, and innovation will be spread across multiple sub-sectors and to some degree will be determined by needs and demand.

Table 43: Costs by sub-sector

Expenditure by Subsector Summary (Rs million)	Crops	Livestock	Forestry	Fisheries	Irrigation	Research	Infra structure	Other
Governance	7,415.7	7,415.7	2,964.0	1,482.0	2,964.0	2,964.0	2,964.0	13,017.9
Productivity	71,213.9	26,199.1	6,217.8	171.0	65,911.0	11,387.7	3,021.0	2,234.9
Commercialization	63,650.0	7,600.0	-	-	-	-	19,747.7	3,203.6
Competitiveness	9,218.8	10,643.8	2,922.7	974.2	-	-	10,187.0	5,329.1
Other Programs	1,852.5	5,415.0	73,124.3	285.0	58,522.5	-	-	1,615.0
Total	153,350.9	57,273.6	85,228.7	2,912.2	127,397.5	14,351.7	35,919.7	25,400.5

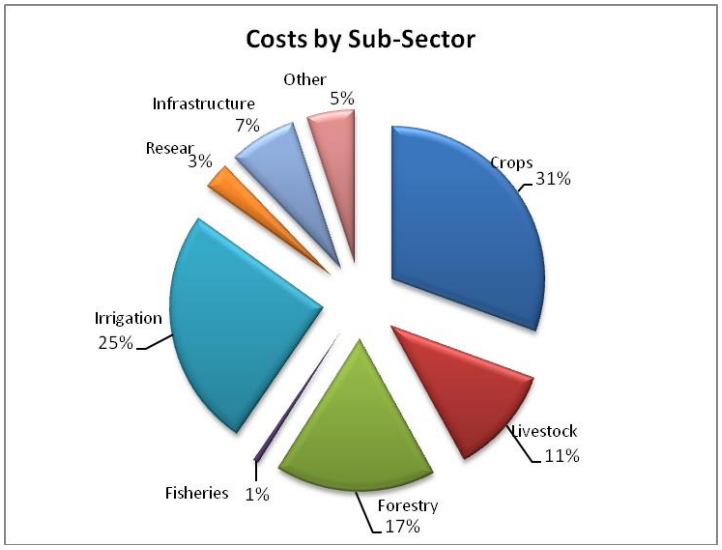


Figure 19: Costs by Sub-sector

Table 44: Subsector Costs by Activity Output

Outcome	Output	ADS Activity Output Costs by Subsector	Costs Rs million								
			Crops	**Livestock**	**Forestry**	**Fisheries**	**Irrigation**	**Research**	**Infrastructure**	**Other**	**Total**
		Total									
1		**Improved Governance**	**7,416**	**7,416**	**2,964**	**1,482**	**2,964**	**2,964**	**2,964**	**13,018**	**41,187**
	1.1	Credibility of policy commitment and farmers' rights	-	-	-	-	-	-	-	342	
	1.2	Improved coordination in ADS implementation	-	-	-	-	-	-	-	761	
	1.3	Integrated planning	-	-	-	-	-	-	-	105	
	1.4	Effective implementation support	-	-	-	-	-	-	-	669	
	1.5	Mechanisms established for gender equality and social and geographic inclusion	-	-	-	-	-	-	-	2,043	
	1.6	Timely and effective monitoring and evaluation	-	-	-	-	-	-	-	1,696	
	1.7	Mechanisms established for participation of civil society	-	-	-	-	-	-	-	1,663	
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	-	-	-	-	-	-	-	2,446	
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	7,416	7,416	2,964	1,482	2,964	2,964	2,964	2,487	
	1.10	Performance-based management system with rewards to the performers established	-	-	-	-	-	-	-	808	
2		**Higher Productivity**	**71,214**	**26,199**	**6,218**	**171**	**65,911**	**11,388**	**3,021**	**2,235**	**186,356**
	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	23,207	23,207	-	-	-	-	1,824	-	
	2.2	Decentralized research system responsive to farmers and agroenterprises' needs	-	-	-	-	-	9,692	57	-	
	2.3	A strengthened agricultural education system	817	817	342	171	342	1,268	1,140	-	
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	-	-	1,900	-	-	-	-	1,190	
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	-	-	-	-	65,569	-	-	-	
	2.6	Timely access to quality agricultural inputs at affordable price.	29	29	-	-	-	-	-	-	

Outcome	Output	ADS Activity Output Costs by Subsector	Costs Rs million								
			Crops	**Livestock**	**Forestry**	**Fisheries**	**Irrigation**	**Research**	**Infrastructure**	**Other**	**Total**
		Total									
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	988	-	-	-	-	238	-	-	
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	43,534	-	-	-	-	-	-	-	
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	-	793	-	-	-	-	-	-	
	2.10	A range of mechanization options accessible to farmers through the private sector.	1,286	-	-	-	-	-	-	-	
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	1,093	1,093	-	-	-	190	-	1,045	
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	261	261	-	-	-	-	-	-	
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	-	-	3,976	-	-	-	-	-	
3		**Profitable Commercialization**	**63,650**	**7,600**	**-**	**-**	**-**	**-**	**19,748**	**3,204**	**94,201**
	3.1	Improved investment climate for agricultural commercialization	-	-	-	-	-	-	-	182	
	3.2	Contract arrangements for commercial agriculture	-	-	-	-	-	-	-	766	
	3.3	Tax policy that supports an efficient commercial agriculture sector	-	-	-	-	-	-	-	6	
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	-	-	-	-	-	-	-	298	
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	63,650	7,600	-	-	-	-	-	1,477	
	3.6	Rural roads network expanded	-	-	-	-	-	-	12,613	-	
	3.7	Agricultural market information and ITC products for market intelligence.	-	-	-	-	-	-	-	475	

Outcome	Output	ADS Activity Output Costs by Subsector	Costs Rs million								
			Crops	**Livestock**	**Forestry**	**Fisheries**	**Irrigation**	**Research**	**Infrastructure**	**Other**	**Total**
		Total									
	3.8	Expanded rural electrification and renewable energies	-	-	-	-	-	-	7,135	-	
4		**Increased Competitiveness**	**9,219**	**10,644**	**2,923**	**974**	**-**	**-**	**10,187**	**5,329**	**39,276**
	4.1	Market infrastructure developed	-	-	-	-	-	-	7,562	-	
	4.2	Growth of innovative small and medium agribusiness enterprises	7,794	7,794	2,923	974	-	-	-	-	
	4.3	Growth of food and agricultural products exports	-	-	-	-	-	-	-	502	
	4.4	Enhanced food quality and safety	1,425	2,850	-	-	-	-	2,625	4,828	
5		**Other Programs**	**1,853**	**5,415**	**73,124**	**285**	**58,523**	**-**	**-**	**1,615**	**140,814**
			-	-	-	-	-	-	-	-	
		TOTAL	**153,351**	**57,274**	**85,229**	**2,912**	**127,398**	**14,352**	**35,920**	**25,400**	**501,835**

7 IMPLEMENTATION ARRANGEMENTS

7.1 Introduction

442. The ADS is a comprehensive strategy based on four components related to improved governance, productivity, commercialization, and competitiveness. Each of these components includes outcomes, outputs, and activities that combined together will contribute to the achievement of the ADS vision: "**a self-reliant, sustainable, competitive, and inclusive agriculture sector that drives economic growth, and contributes to improved livelihoods, and food and nutrition security leading to food sovereignty."**

443. The agriculture sector spans across different agencies and includes multiple stakeholders. Therefore the implementation of the ADS requires the coordination of various agencies and stakeholders and innovative approachesto facilitate its successful execution.

444. Innovative approaches to implement the ADS are necessary given that the continuation of old ways is unlikely to yield the desired effects. The review and assessment of the agriculture sector has indicated a number of implementation constraints (lack of policy consistency, weak coordination, lack of integrated planning, weak implementation, etc) that were taken into account into the formulation of the ADS. Overall those constraints were part of governance issues. The ADS builds on the understanding of the governance issues and proposes a set of mechanisms that will help overcome the constraints.

7.2 Traditional and Innovative Approaches

445. The implementation of the ADS will entail the combination of traditional and new mechanisms. The traditional way of implementing strategies and plans for the agriculture sector envisages an institutional framework whereby the NPC provides overall policy coordination, the Ministry of Agricultural Development (MOAD) provides leadership in implementing agricultural programs, and related agencies support the implementation. For example, the Department of Irrigation (DOI) would be in charge of irrigation development, the Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) is in charge of agricultural road, Department of Agriculture (DOA) and Department of Livestock Services (DLS) are in charge of agricultural and livestock extension, and Nepal Agricultural Research Council (NARC) is in charge of agricultural research.

446. The traditional way of implementing programs and plans has its own logic and rationale. However, in the traditional way coordination has been weak, partly because of the weak capacity of implementation agencies in policy formulation, integrated planning, policy monitoring, procurement, and financial management; and partly due to the new challenges arising during the process of agricultural transformation including migration, global value chains, food crises, and loss of agricultural land.

447. In the traditional way of implementing agricultural programs in Nepal, the key stakeholders of the agriculture sector, namely farmers, cooperatives, and private agroenterprises have often been left in the backstage of development, with the front stage taken by government agencies.

448. The traditional mechanisms offer useful lessons and guidance for the future; clearly NPC, MOAD, and other line agencies have an important role to play in the ADS and this role has to be acknowledged and strengthened. However, the traditional mechanisms are also limited in their implementation capacity and their relegation of key stakeholders (farmers, cooperatives, and private sector) in the back stage. More fundamentally, the traditional way of implementing agricultural policies and programs in Nepal has not produced the desired results of accelerated growth and poverty reduction.

7.3 Overview of the ADS Organizational Structure

449. A bird's view of the ADS implementation is presented in Figure 20. The implementation of the ADS requires the concerted effort of various institutions from the state, civil society, and development partners. The NPC will provide overall policy and planning coordination and MOAD will lead implementation. Several related agencies will implement the core programs of the ADS, the four flagship national programs (on food and nutrition security; value chain development; decentralized science, technology, and education; and innovation and agro entrepreneurship), and other programs.

450. Overall, the ADS will be implemented through existing Government of Nepal structures. Recognizing the complexity and multi-agency requirements to implement the ADS, steps will be taken to strengthen existing agencies to assist with planning, coordination, implementation, and monitoring.

451. Overall coordination of policies and programs will be achieved through the National ADS Coordination Committee (NADSCC) which is based on existing coordination mechanisms (such as NSC, CADIC, RADC, and DADC, at national, regional, and district level); overall implementation of programs and projects will be undertaken under the overall guidance of the National ADS Implementation Committee (NADSIC). The NADSIC will serve as the Steering Committee for the ADS Implementation Support Unit (ADSISU)which will be established under MOAD and act as the responsible agency to support implementation of the ADS.

452. All the current modalities of financing to the sector will remain the same. The only additional modality will be a multi development partners ADS Implementation Trust Fund (ATF). Resources may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of ADS programs, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the independent ADS implementation and strategic direction review.

453. The ADS proposes new mechanisms to improve implementation. The new mechanisms build upon the existing mechanisms and complement them, support them, and strengthen them. Specifically, in addition to the NPC, MOAD and other related agencies, the ADS implementation will rely on the combination of new organizations, national programs, and leading stakeholders.

Box 1: The ADS Mechanisms

Organizations

1. National ADS Implementation Committee (NADSIC)
2. National ADS Coordination Committee (NADSCC)
3. ADS Implementation Support Unit (AISU)
4. ADS Implementation Trust Fund (ATF)

National Programs

1. Food and Nutrition Security Program (FANUSEP)
2. Decentralized Science, Technology, Education Program (DESTEP)
3. Value Chain Development Program (VADEP)
4. Innovation and Agro-entrepreneurship Program (INAGEP)
5. Core Programs
6. Other Programs

Leading Stakeholders

1. Ministry of Agricultural Development, National Planning Commission and other government agencies
2. Farmer Organizations
3. Cooperative Organizations
4. Private Sector Organizations

454. A summary of the key actors and their role in the implementation of the ADS is provided in Table 45.

Table 45 Key Actors in the Implementation of the ADS

Actors	Role in the ADS	Comments
Prime Minister (PM)	Receives regular briefing about progress of the ADS from NPC and MOAD and addresses any issues that require high level solution.	• Chief Guest at the annual ADS Conference.
NPC	National Planning Commission. Provides overall policy coordination. Ensure integrated planning and budgeting of ADS	
NADSIC	National ADS Implementation Committee. Guides and ensures overall implementation of the ADS.	• Chaired by Minister of MOAD
NADSCC	National ADS Coordination Committee to ensure high level coordination among agencies of policies and plans consistently with ADS strategy.	• Chaired by VC of NPC • This committee is the same as the existing NSC (National Support Committe • The new name reflects the ADS focus.
NADSCC subcommittees	Overall activities coordination of ADS through is sub-committees for • Irrigation-Agriculture • Agribusiness, Private Sector, Coops • Civil Society/NGOs • Research, Extension, Education	

Actors	Role in the ADS	Comments
	• Food Security and Nutrition • Development Partners	
CADIC	Central Agriculture Development Implementation Committee. Overall coordination of agricultural activities at national level	• Chaired by Secretary MOAD
RADC	Regional Agriculture Development Committee. Overall coordination of agricultural activities at regional level	• Chaired by Senior Regional Director
DADC	District Agriculture Development Committee. Overall coordination of agricultural activities at district level	• Chaired by DDC Chairperson
ADSISU	ADS Implementation Support Unit. Facilitates implementation of ADS through capacity building, communication activities, support services, and monitoring and evaluation support. It provides support to the NADSCC, other coordination committee, implementation agencies, and flagship program managers.	• ADSISU Team established as unit to support ADS.ADS Coordination Section will act as ADSISU • Technical assistance team and funded by Development Partners with government counterparts. • Reports to the NADSIC which will act as its steering committee. • Main unit locate at MOAD and subunits at other key agencies. • Provides secretarial services to the NADSCC.
ATF	ADS Implementation Multi-donor Trust Fund. A financing modality additional to current modalities of GON. Resources in the fund may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of ADS programs, (c) milestone performance payments to parties responsible for implementing the ADS, and (d) payment of independent ADS implementation and strategic direction reviews.	• Flexible implementation modality to be agreed by GON and Development Partners • Basically wil be led by the Government of Nepal

Actors	Role in the ADS	Comments
MOAD	Ministry of Agricultural Development. Lead the Implementation of the ADS. Minister will chair NADSIC and Secretary MOAD will chair CADIC and prepare ADS Annual Report. MOAD will be present in the board of all the ADS Flagship programs.	• DOA, DLS, DFTQC; and NARC involved in the implementation of activities of the ADS
Other Ministries	Include MOI, MFALD, MOCPR, MLRM, MOE, MOTS, MOInd, MOFSC, etc. They implement related policies, programs, and projects that need to be coordinated within the ADS.	• Departments of related ministries (eg DOI, DOLIDAR, DOFSC, DOC, …)
Other Agencies and Programs	Investment Board, PAF, CBS	• Will coordinate with ADS programs
FANUSEP Flagship 1	Food and Nutrition Security Program. Helps coordinating programs on food and nutrition security and implementing projects such as NAFSP, FSNP. Aligned with MSNP.	• MOAD, DOA, DLS, DDC
DESTEP Flagship 2	Decentralized Science Technology and Education Program. Helps establishing Community based Agricultural Extension Service Centers (CAESCs) in each VDC, strengthening existing agricultural/livestock service centers, restructuring of NARC, strengthening agricultural education system, and supporting capacity building and training of professionals in the sector.	• DSTEP established by Act as a professional society • DSTEP manager selected by Recruitment Committee established by NADSICCoordinates with implementing agencies NARC, DOA/DLS, Agricultural University,…
VADEP Flagship 3	Value Chain Development Program. Coordinates prioritized value chains programs , each program implemented by Value Chain Development Alliance (VCDA) through a Value Chain Development Fund (VCDF)	• VADEP established by Act as a professional society • VADEP manager selected by MoAD • VCDA registered as foundations
INAGEP Flagship 4	Innovation and Agricultural Entrepreneurship Program. Fosters agricultural innovation and agroentrepreneurship through the combination of	• INAGEP established as a professional society • INAGEP manager selected by MoAD

Actors	Role in the ADS	Comments
	tax incentives, agribusiness incubators, and matching grants.	
National Peasants' Coalition	A coalition of farmer organizations with representatives from major parties. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
Farmers' Commission	Ensures the farmers rights	• TOR, Acts, Regulations will be developed at the initial years of ADS implementation
National Federation of Cooperatives	They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
FNCCI	Federation of Nepal Chambers of Commerce and Industry. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
CNI	The Confederation of Nepalese Industries (CNI) is the apex body of the large and medium scale industrial community of Nepal. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	

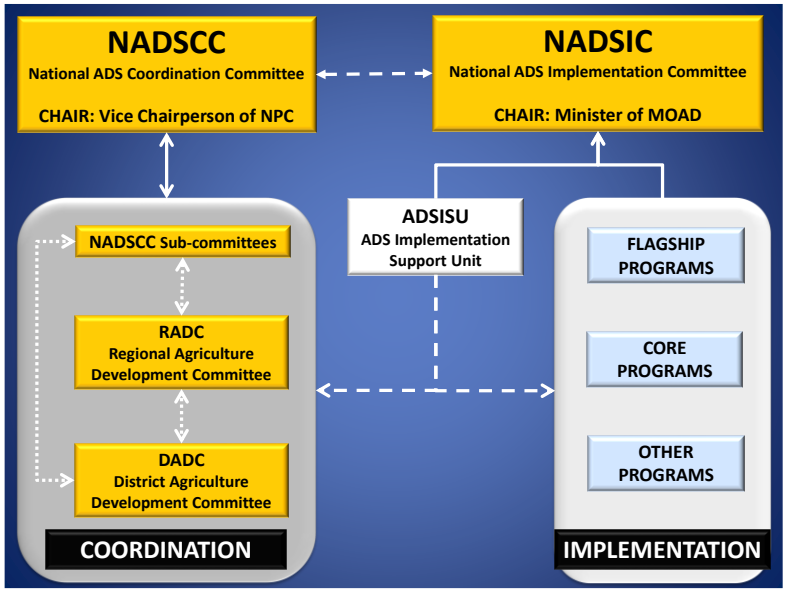


Figure 20 ADS Implementation and Organization Mechanisms

7.4 The Prime Minister

455. Agriculture, together with energy and tourism is generally recognized as one of the key economic engines of the nation. However, the contribution of agriculture to livelihoods and employment of the population surpasses that of any other sector of the economy. Its development is vital to the socioeconomic development of Nepal. Given this context, successive prime ministers of Nepal have strongly supported the ADS since its inception. During

future implementation of the ADS the Prime Minister will receive regular briefings about the progress in implementation of the ADS from the NPC and MOAD and address any issue that needs solution at the highest level. The Prime Minister will be the Chief Guest at the annual ADS Conference.

7.5 The National Planning Commission (NPC)

456. The NPC will be responsible for overall policy coordination of the ADS and integration and budgeting of periodic and annual plans consistently with ADS planning. The ADS Implementation Support Unit will report to it. The Vice Chair of NPC will also chair the National ADS Coordination Committee (NADSCC), the highest coordinating body for the ADS.

7.6 The National ADS Implementation Committee (NADSIC)

457. A National ADS Implementation Committee (NADSIC) will be established, which will be chaired by Hon. Minister for Agricultural Development, with Hon VC of NPC as co-chair, Hon member of NPC (Agriculture Sector), VC University of Agriculture and Forestry, Secretaries from the Ministries of Finance, Irrigation, Forestry, Federal Affairs and Local Development, Cooperative and Poverty Alleviation, Land Reform and Management, Education, Presidents of FNCCI and CNI, representative of National Peasant's Coalition as members, and MoAD Secretary as Member Secretary. Observer status will be made available to the independent professionals, DP representative, NGOs and academia. The ADS implementation committee will be responsible to ensure the Implementation of ADS and should meet bi-monthly. The TOR of the Committee will include the following:

i. Ensure the implementation of ADS by promoting policy, administrative and legislative changes in responsible institutions.
ii. Ensure resource mobilization both from internal (public and private) and external sources.
iii. Provide guidance to the line ministries and the stakeholders to facilitate ADS programs and projects implementation from the grassroots to the national level.
iv. To act as the Project Steering Committee for the TA which supports ADS implementation,
v. Together with NADSCC and the NPC, organize periodic assessment of the ADS and recommend adjustments.
vi. Adjust ADS Programs, and institutional structure as per the upcoming federal structure.

7.7 The National ADS Coordination Committee (NADSCC) and its Subcommittees

458. The National ADS Coordination Committee will coordinate the ADS at the national level through periodic meetings. The NADSCC will be establishe at NPC and its composition will include representatives of farmer organizations, private organizations, and cooperative organizations. The NADSCC is the national coordination committee of institutions involved in the ADS and will beunder the chairmanship of Vice Chairman (VC) of NPC. NADSCC will be strengthened through secretariat service provided by the ADS Implementation Support Unit (ADSISU) and will be enhanced with the establishment of the following NADSCC sub committees charged with improving the coordination of ADS relevant issues such as:

a. Coordination between agriculture and irrigation extension (specifically between DOA and DOI)
b. Coordination among public sector, private sector (e.g. Federation of Nepal Chambers of Commerce and Industry or FNCCI, Agroenterprise Center or AEC, agribusiness associations, associations of small and medium enterprises), cooperative sector (e.g. National Federation of Cooperatives), and farmer organizations (e.g. National Peasants' Coalition)
c. Coordination between government sector and non-governmental organizations/international non-governmental organizations (NGOs/INGOs)
d. Coordination between government and development partners
e. Coordination among Research-Extension-Education organization (NARC - DOA, DLS, DFTQC - University of Agriculture and Forestry, Colleges of Agriculture, Center of Vocation Education and Training)
f. Coordination between Agricultural Development and Food Nutrition Security and Food Safety (MOAD and MOHP, National Nutrition and Food Security Steering Committee-NNFSSC)

7.8 CADIC, RADC, DADC

459. The Central Agriculture Development Implementation Committee (CADIC) chaired by Secretary MOADwill periodically convene agencies involved in the implementation of agricultural programs and coordinate activities.

460. Similar coordination mechanisms exist at the regional level - Regional Agricultural Development Committee (RADC) coordinated by Regional Director Agriculture – and at the district level - District Agricultural Development Committee (DADC) chaired by DDC Chairman. All these mechanisms need to be strengthened and revitalized with support of the ADS Agricultural Support Unit.

461. Effective communication among DADCs, RADCs, and CADIC should be assured through periodic briefings from DADCs to the RADCs and CADIC. The ADS Implementation Support Unit (AISU) will facilitate these briefings.

462. The ADS will support regular meetings of CADIC, RADC, and DADC and dissemination of the meetings minutes through the services of the ADS Implementation Support Unit (AISU). A focal person in each DADC will be identified to liaise with other agencies in the district.

463. Annual ADS Report will be prepared by CADIC and submitted to NPC with the assistance of the ADS Implementation Support Unit (AISU).

464. Regulation will be enacted to allow for the composition of CADIC, RADC, and DADC to include representatives of farmers organizations, cooperative organizations, and private sector organizations.

465. The composition and functions of the RADC are likely to be considerably revised if and when a federalist structure will be approved by the Constitutional Assembly.

7.9 ADS Implementation Support Unit (ADSISU)

466. The implementation of the ADS requires coordination among different agencies and stakeholders, and policy, legal and analytical skills that are currently dispersed. Effective coordination in turn is the basis for effective planning and policy formulation and monitoring. A unit endowed with capacity in policy formulation and analysis, will greatly contribute to bridging the gap between policy and implementation. The unit will be established at MOAD and will support the ADS implementation and capacity building of related stakeholders and the agencies involved in ADS implementation and coordination. The main ADSISU at the MOAD(focal division: Policy and International Cooperation Coordination Division)will work with subunits of ADSISU that will operate at NPC, MOF, MOI, MFALD, FNCCI, and in Agriculture and Forestry University and Tribhuwan University.

467. Furthermore this unit will extend support to ensure the capacity enhancement of Regional and District Institutions engaged in ADS implementation. The National ADS Implementation Committee will work as the Project Steering Committee for the ADS Implementation Support Project. It is proposed the ADSISU is supported with donor funded technical assistance. ADS flagship program managers should have observer status on the ADSISU.

468. Over time, the unit and subunits will be institutionalized as part of the regular activities of MOAD and other ministries.

469. Functions of the ADSISU include:

i. Provide capacity building in policy analysis and policy monitoring and integrated planning to relevant implementation agencies;

ii. Support to development of a system and database for ADS monitoring;
iii. Support formulation and amendment of policies and regulations for implementation of the ADS;
iv. Support formulation of integrated periodic plans (annual and 5-year plans, and revisions /updates of ADS plans);
v. Support NADSCC, NADSIC, ATF Secretariat and professional service;
vi. Support coordination mechanisms (NADSCC, NADSIC, CADIC, RADC, DADC)in terms of capacity, logistics, and analytical units;
vii. Support monitoring of the ADS implementation and institutionalization, including monitoring of related policies;
viii. Facilitate implementation of national programs such as the ADS Flagship programs through advisory services to the Program Managers;
ix. Support harmonization of Sector Policies with international commitments and guidelines;
x. Help to develop and institutionalize a performance-based management system for ADS and institutionalize performance based incentives for ADS implementation institutions;
xi. Collect and analyze data of strategic importance to ADS implementation as needed and in synergy with existing data collection systems;
xii. Coordinate development partner investments and programs to be in line with implementation of the ADS;
xiii. Evaluate and possibly formulate a sector wide approach for agriculture and, in case such approach is pursued by GON, support its implementation;
xiv. Commission studies to look at costs and benefits of alternative policies (eg minimum price schemes for rice and wheat).

7.10 ADS Implementation Trust Fund (ATF)

470. All current modalities of financing to the sector will remain the same. The only additional modality will be a multi donor ADS Trust Fund (ATF)to be established with a flexible implementation modality agreeable to both GON and development partners.. However, the implementation of the ATF will be led by the Ministry of Agricultural Development. Resources in the ATF may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of the ADS, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the periodic (eg biannual) ADS implementation and strategic direction review.

7.11 The Ministry of Agricultural Development (MOAD)

471. The MOAD leads the implementation of the ADS. The Minister of MOAD will chair the NADSIC; the Secretary MOAD will be (i) Member Secretary of the NADSCC; (ii) Chair the CADIC; and (iii) Board Member of the ATF. As chair of the CADIC, the Secretary MOAD will be responsible for preparing the ADS

annual report. MOAD will nominate members in the boards of all the ADS Flagship Programs. The departments of MOAD (DOA, DLS, DFTQC) and NARC will be involved in the implementation of extension and research programs of the ADS. Moreover, MOAD and the departments will coordinate with other agencies and stakeholders in the implementation of other ADS programs that are not part of the flagship programs.

7.12 Other Ministries and Agencies

472. Other ministries involved in the implementation of the ADS (MOF, MOI, MOFSC, MoEDU, MOHP, MOE, MLRM, MOCT, MoInd,etc.) will coordinate activities with the ADS through coordination bodies such as NSC and its subcommittees, and CADIC; and through implementation of joint programs (eg. MoEDU and MOAD will work together on the implementation of the DESTEP).

473. Other relevant agencies relevant to the implementation of the ADS include financial institutions (eg. Nepal Rastra Bank), Investment Board, Insurance Board, PAF, and Women Commission.

7.13 ADS Programs

474. The ADS will be implemented through three different types of programs: the Core Programs, the Flagship Programs, and Other Programs. The Core Programs are implemented mostly through existing agencies already in place at the ministry levels or department levels of agencies. The Flagship Programs on the other hand require different management structure in view of the innovative and multisector nature of their activities. Other Programs are those that are currently implemented but are not part of the existing Flagship or Core Programs.

7.14 Exit Strategy for Other Programs

475. Other Programs include ongoing programs such as fruit development, fish, silk, goat development, and others. These programs are not included in the Flagship Programs or Core Programs of the ADS. In many cases, they are related to the development of specific value chains.

476. Before the implementation of the ADS, the existing Other Programs will be evaluated for restructuring by independent professionals. Based on the suggestions received from the evaluation report, MOAD will restructure (e.g. modify, merge, drop etc.) the existing Other Programs and resource allocation will be made according to the prioritization.

477. Someof the ongoing Other Programs are likely to be completed during the early years of ADS. If the evaluation of Other Programs shows promising national impact then these programs could become part of future Flagship or Core Programs.

478. It should be noted that even though these Other Program are not included in the currently formulated Flagship or Core Programs, they still could be supported through access to resources made available in the research and entrepreneurship matching grant funds (funds under NARF and INAGEP).

479. Over time, the ADS will include only two types of programs, namely the Flagship and the Core Programs. The existing Other Programs (see Table 33)will be either discontinued after their completion or will be absorbed in a new formulation of Flagship and Core Programs.

Table 46 Flagship and Core Programs of the ADS

	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
No.	**GOVERNANCE**		
1.1	Credibility of policy commitment		√
1.2	Improved coordination in ADS implementation		√
1.3	Integrated planning		√
1.4	Effective implementation support		√
1.5	Mechanisms established for gender equality and social and geographic inclusion		√
1.6	Timely and effective monitoring and evaluation		√
1.7	Mechanisms established for participation of civil society		√
1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation		√
1.9	Improved food and nutrition security of disadvantaged groups	√	
1.10			√

	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
	PRODUCTIVITY		
2.1	Decentralized agricultural extension services	√	
2.2	Decentralized agricultural research system	√	
2.3	Strengthened agricultural education system	√	
2.4	Adequately sized farms that use land efficiently and sustainably		√
2.5	Expanded and improved irrigation		√
2.6	Access to agricultural inputs		√
2.7	Implementation of seed policies		√
2.8	Fertilizer supply		√
2.9	Improved animal breeds		√
2.10	Mechanization options accessible		√
2.11	Improved resilience of farmers		√
2.12	Sustainable farming, GAP, GMP and GVAHP adopted		√
2.13	Forestry development		√
	PROFITABLE COMMERCIALIZATION		
3.1	Improved investment climate		√
3.2	Contract arrangements for commercial agriculture		√
3.3	Tax policy to support commercial agriculture		√
3.4	Agricultural finance and insurance		√
3.5	Competitive agricultural value chains	√	
3.6	Rural roads network expanded		√
3.7	Agricultural market information		√
3.8	Rural electrification and renewable energies		√
	COMPETITIVENESS		
4.1	Market infrastructure developed		√

	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
4.2	Growth of small and medium agro-enterprises	√	
4.3	Growth of food and agricultural products exports		√
4.4	Enhanced food quality and safety		√

7.15 ADS Flagship Programs

480. The ADS envisages some prioritized programs around which could be mobilized sufficient consensus, resources, and effective management. These prioritized programs will be referred to as "ADS Flagship Programs". The four flagship programs of the ADS are:

i. Food and Nutrition Security Program (FANUSEP)
ii. Decentralized Science, Technology, and Education Program (DSTEP)
iii. Value Chain Development Program (VADEP)
iv. Innovation and Agro-entrepreneurship Program (INAGEP)

7.16 Food and Nutrition Security Program (FANUSEP)

481. The Flagship Program FANUSEP aims at improving food and nutrition security of the most vulnerable groups. It consists of three subprograms: the Nepal Food Security Project (NAFSP), currently been finalized as part of the GAFSP; the Food and Nutrition Security Plan of Action (FNSP), currently been finalized with assistance of FAO; and a new food and nutrition security project to be designed and implemented in the second 5-year period of the ADS action plan. The set of activities in this output are then complex subproject including NAFSP an FNSP.

482. The implementation of the program requires coordination between the national programs NAFSP and FNSP and other food and nutrition programs funded by development partners (such as Feed the Future funded by USAID, programs funded by WFP, and programs funded by GON and other development partners within the umbrella of the MSNP to ensure that the most food insecure rural households and farmers are reached. The Program Manager of FANUSEP) will report to the subcommittee on food and nutrition security of NADSCC (see section 7.7). The ADS in general and FANUSEP in particular will align with the MSNP a five year program already approved by the GON.

483. After the first 5-year implementation of the program, a review will be undertaken by the Program Manager of FANUSEP to assess lesson learned and design a new program on food security to make a major indent in reducing food insecurity and malnutrition.

7.17 Decentralized Science, Technology, and Education Program (DSTEP)

484. The Flagship Program DESTEP aims at decentralizing the extension and research system while fostering coordination of research, extension, and education in order to enhance responsiveness to farmers' and agroenterprises' needs.

485. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The DESTEP Manager will ensure coordination among NARC, DOA/DLS, and agricultural education institutions such as Agricultural Universities and Colleges and facilitate implementation of the activities related to the outputs of decentralized extension system, decentralized research system, and strengthened agricultural education system.

486. The decentralized extension system will include three main measures: (i) establishment of Community Agricultural Extension Service Centers (CAESC) in each VDC; (ii) strengthening capacity of existing and planned agricultural extension stations that will provide backstopping services to the CAESCs; and (iii) promoting a voucher system to empower farmers to access the best available extension and extension service providers. These measures have been explained in section 5.3. The following section expands on the implementation aspects related to the CAESC.

487. The funds required for implementation of the DSTEP will be pooled into a fund, the DSTEF (Decentralized Science, Technology, and Education Fund) that will be replenished through contribution of GON and Development partners. The DSTEP Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the DSTEF and related implementation agencies such as NARC, DOA, DSL, Agriculture and Forestry University, Institute of Agriculture and Animal Sciences and Agricultural Colleges.

7.17.1 Community Agricultural Extension Service Centers (CAESC)

488. Currently, the extension system under the management of the GON is organized through a network of Agricultural Service Centers (ASC) under the responsibility of DOA and Livestock Service Centers (LSC) under the responsibility of DLS. The network does not reach all the VDCs in the country. In total there are 378 ASC and 999 LSC. In Nepal there are 3,157 VDC and 217 municipalities (MOF: Ministry-wise Progress Report 2072/73).

489. This limited number of service centers represents a constraint in reaching out the farmer population of Nepal. The limited number of service centers is aggravated by the limited resources available to carry out program and capacity building activities. As a result most of the VDC and farmers are not reached out by the national extension system. Furthermore, even when farmers are reached by the existing extension system, there is no guarantee that the local needs are adequately met by the existing system. The agroecological and socioeconomic diversity of Nepal is extraordinary and represents a

challenge for any specific type of extension service provider to respond effectively to the needs of different types of farmers. Government extension service providers, NGOs providers, and private sector providers are able to meet the needs of only one part of farmers and agroenterprises in Nepal.

490. To remedy this situation, the ADS proposes a different approach and institutional framework. Building on the existing network of ASC and LSC, the ADS will support the creation of Community Agricultural Extension Service Centers (CAESC) that are fully owned and managed by the communities in each VDC/ Municipality and funded by the combination of resources from the VDC/Municipality, cooperatives, private sector, and GON.

491. Each CAESC will be a society registered according to the Law; memberships is open to all farmers, agroenterprises, and agricultural extension service providers in the VDC, and their organizations; governance rules for the formation of a CAESC will be established by the DESTEP Program Manager to assure that representatives of different wards in each VDC and social and gender balance is assured in the Board of the CAESC.

492. As a Society, the CAESC will own and manage its own assets, hires its own staff, conduct meetings, formulate business plan, open a bank account, disburse funds, and audit accounts and review activities periodically. Governance rules will establish the composition of the board and the way board members are elected by the members of the Society. Membership fees will be decided by the General Assembly. The overall purpose of the Centers will be to facilitate extension services at the village level and to meet the demands and needs of the grassroot. The Centers will hire their own extension service providers (agricultural and livestock technicians or village extension workers) who will receive training and technical backstopping from the Government service centers in the districts or in the departments' appropriate units. The Centers might also organize additional capacity building to be obtained from other providers such as Agricultural University, Agricultural Colleges, or vocational schools. The Center might initiate direct MOU or contracts with projects, NGOs, or private service providers as well.

493. The funding of the CAESC will come from different sources: (i) own funding of members; (ii) VDC budget; (iii) central government budget (as seed funding); (iv) projects; (v) service fees or other economic activities initiated by the centers themselves.

494. The Centers might initially use the premises of local cooperatives, of VDC facilties, or any other available facility belonging to the members in order to conduct meetings. As the center grow both in membership and finance, they might acquire their own facilities.

495. The contribution of the ADS to the CAESC consists of an initial seed funding that is intended to leverage local resources. For each amount provided by the ADS as seed funding (up to a limit of Rs 10 lakh)for the establishment of the CAESC, the center has to match with an equal amount and give a

convincing plan that it will continue its operations in the future. This matched amount could be sources by own sources, VDC funding, or any other funding that the community center might be able to source.

496. The CAESC will be entirely managed by the community according to governance rules that are clearly established at the outset. The center will hire its own staff to provide extension services. The staff will be trained by the government staff either at the nearest ASC/LSC or at training centers of the DOA/DLS. The CAESC will be linked to the ASC/LSC so that activities in each district can be better coordinated.

497. The approach requires awareness campaign and capacity building to support the establishment of CAESC. Guidelines for the establishment of the CAESC will be formulated by the Program Manager of the DESTEP.

498. The outcome will be a network of extension service centers that have the chance of reaching all VDC in the country, are totally managed by the communities and therefore more likely to be responsive to the diverse needs of the farming population, and be responsible for raising funds and therefore more sustainable.

7.17.2 Decentralized Research System

499. The decentralized research system will require restructuring of NARC, establishment of new national research institutes (eg a National Horticultural Research Institute) and the establishment of research stations in all regions, including the far western region. NARC will act as the apex institution in national agriculture research system, a policy body to coordinate, facilitate, consolidate, monitor and evaluate research projects, fund research projects and promote research linkages at national and international levels. National research institutes and Regional Agricultural Research Stations (RARS) under NARC will act as the implementing bodies for carrying out research, training and managing human resources and institutions as indicated in the NARC proposed structure. The ADS will promote the establishment of National Agriculture Research Fund (NARF) integrated with NARC. The existing NARDF will be merged with NARF. NARF will fund action research projects to be conducted by public, private, and NGO organizations to meet the demand of farmers and agroenterprises.

500. In addition to the existing National Agriculture Research Institute (NARI) and National Animal Science Research Institute (NASRI), ADS will help to establish the National Horticulture Research Institute (NHRI), the National Animal Health Research Institute (NAHRI) and the National Aquaculture and Fisheries Research Institute (NAFRI). ADS will also support the establishment of Agricultural Research Stations at different agroecological zones (high hills,

mid hills, and terai) in the Far Western Region to complement the recent decision to transform the Agricultural Research Station in Doti into a Regional Agriculture Research Station (RARS) in Far Western Region. The ADS will support establishment of Agriculture Mechanization Centers in the terai (2), mid hills (1), and high hills (1) within existing research centers. The ADS will promote the consolidation of research stations and programs that are physically located in the proximity and perform similar research activities. It will reduce administrative cost and duplication of resources especially operational expenses. The ADS will help to establish functional linkages with educational institutions and with the extension service for the availability and sharing of their facilities including for educational purpose.

7.17.3 Integration with the Agricultural Education System

501. The integration with the agricultural education system will include support to the Agriculture and Forestry University, Tribhuwan University, creation of a department of agribusiness in those university, capacity building of vocational schools, inclusion of agriculture courses in school curricula and support to the establishment of agricultural colleges in the districts wherever it seems feasible. Additional measures to ensure closer integration with research and extension include joint educational and research programs with NARC institutes, joint extension programs with departments and district officers, joint educational programs with CAESC, identification of innovative ways for the Agriculture and Forestry University and the Agricultural Colleges to partner with the private sector (example renting/leasing facilities, training to private/community organizations), and coordination with health and medical institute to mainstream food and nutrition security into the agricultural universities, colleges, and vocational schools.

502. Accelerated growth of agriculture sector depends on various factors, among which education plays a key role in improvement total factor productivity. Underinvestment in this sector will slow down the capacity of Nepal to meet the challenges of agricultural transformation. For too long the agricultural education in Nepal has been left languishing and underinvested. To ensure growth of the agriculture sector, this declining trend investment in agricultural education has to be reversed.

7.18 Value Chain Development Program (VADEP)

503. The Flagship Program VADEP aims at developing competitive and inclusive value chains of national importance. A market for the poor approach (M4P) will be applied to the prioritized value chains. Priority will be given to a very limited number of value chains[68] selected through a process that takes

[68]The potential value chain commodities will be decided by the NADSIC as per the dynamic priority of the country .

into account the following criteria: (i) Poverty reduction potential; (ii) Growth potential (or potential for increasing growth and access); (iii) Intervention potential; and (iv) Cross-cutting issues such as social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread. The prioritized value chains will be developed through comprehensive and integrated measures that result in strengthened value chain linkages, increased PPP investment and value added with sector impact.

504. Differently from other value chain interventions in Nepal, the VADEP will have the following innovative features: (i) will be looking at and developing all the stages of the value chain, from seeds to final products, from production to processing, from market infrastructure to access roads and connectivity, from postharvest technology to quality assurance and exports; (ii) will strengthen linkages among associations of farmers, traders, processors, input providers and other value chain actors in order to ensure effective investment; (iii) will aim at replication and linkages beyond the district and achieve national impact; and (iv) will work not only with one district or department but across districts and departments.

505. The Manager of VADEP will be deputed by the Ministry of Agricultural Development. The Manager will be a highly regarded professional with in-depth experience in agricultural value chain development, project management, and business development. S/he will coordinate with the CEOs of specific Value Chain Development Alliances (VCDAs) to implement the specific value chain programs. The VADEP Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the VCDA. The VADEP Manager will assure overall M&E of the program.

7.18.1 Value Chain Development Alliances (VCDA)

506. The Value Chain Development Alliances (VCDA) are societies registered according to the law, owned by key industry representatives including farmers and their associations, entrepreneurs, input providers, logistics operators, warehouse managers, cooperatives, and other value chain actors. The commonality of all the actors is that they are all engaged commercially on a specific value chain and are interested in promoting its commercial development while contributing to poverty reduction.

507. Each VCDA will have access to a Value Chain Development Fund (VCDF). The members of the VCDA will nominate a Board according to the law. The Board will include 6 elected members and 7non-elected members. The non-elected members will be nominated by GON and include representatives from MOAD, MoF, NPC,MOI, MFALD, FNCCI, and NRB. The Board will be chaired by MOAD representative. The Management will prepare a business plan

and an investment plan, to be approved by the Board. The operations of the VCDA will be audited according to the law. Moreover, they will also be audited according to regulations of the Development Partners supporting the VCDF.

7.19 Innovation and Agroentrepreneurship Program (INAGEP)

508. The Flagship Program INAGEP aims to foster agricultural innovation and agroentrepreneurship through the combination of tax incentives, agribusiness incubators, and matching grants. The main beneficiaries of this program will be private enterprises, cooperatives, and innovative entrepreneurs from targeted youth, women, and disadvantaged groups.

509. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises improved tax incentives, establishment of agribusiness incubators, and matching grants.

510. The funds required for implementation of the INAGEP will be pooled into a fund, the INAGEF (Innovation and Agroentreprenership Fund) that will be replenished through contribution of GON and Development partners. The INAGEP Manager will be responsible for disbursements of funds from the INAGEF to the agribusiness incubators and the matching grant fund managers. The INAGEP Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the INAGEF.

7.20 Leading Stakeholders: Farmers, Cooperatives, and Private Sector

511. In addition to the public sector, the leading stakeholders in the ADS will be the farmers and their commission, cooperatives, Value Chain actors, private agroenterprises, and their organizations (eg the National Peasants' Coalition, the National Cooperatives Federation, National Farmers Group Federation, the Seed Entrepreneurs Association, the Dairy Industry Association). There are similar organizations at the district level and in the case of farmers and cooperatives at the VDC level. Moreover, there are national and local commodity organizations or trade organizations. Farmers in the ADS include both commercial farmers and subsistence farmers; smallholders and marginal farmers. Agroenterprises include micro, small, and medium enterprises. Most farmers are women.

512. The ADS success depends on the participation and the ownership of farmer organizations, cooperative organizations, and private sector organizations. Differently from previous strategies for the agriculture sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

513. The leading ADS stakeholders have the rights to:

- Participate and influence the ADS policy and investment decisions
- Participate in the monitoring of the ADS
- Access to information related to ADS planning, implementation, and monitoring

514. At the same time, the leading ADS stakeholders have the duty to:

- Contribute to the solution of the problems encountered during formulation and implementation of the ADS
- Contribute to accelerating the process of decision making regarding the ADS

515. The rights of the leading stakeholders in the ADS are institutionalized as follows. Representatives of Farmer commission, Farmer Organizations (FO), Cooperative organizations (COO), and Private Sector Agroenterprise Organizations (PSO) will be members of the ADS key decision and coordination bodies that oversee the formulation, planning, implementation, and monitoring of the ADS including:

i. NADSCC and CADIC
ii. NADSCC Subcommittees related to the ADS
iii. Steering Committee of the ADS Implementation Support Unit
iv. DADC and RADC
v. NARC Board
vi. Governing Body of the CAESC
vii. Policy Review Panels organized to review the formulation of new policies under the PICCD at MOAD
viii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
ix. NeKSAP District Food Security Network

516. Given the majority of farmers in Nepal being women, the ADS would encourage farmer organizations, cooperative organizations, and private sector organizations to have women representatives participating in these coordination, monitoring, and decision bodies.

7.21 Civil Society Organizations

517. In addition to the public sector, private sector, cooperative sector, and farmer organizations, other civil society organizations will be key stakeholders in the ADS. Among these other key stakeholders it is worthwhile to mention:

- Service providers such as NGOs and professional organizations such as
- Women organizations
- Dalit organizations
- Janajati organizations
- Consumers organizations
- Professional organizations
- Association of VDC
- Media
- Producer Organizatopm

518. In several cases, the ADS structure recognizes explicitly their role. For example, NGOs and INGOs coordination with the ADS is the main focus of the related NSC subcommittee. Implementation of several activities of the ADS including social mobilization of farmers, extension services, and awareness campaigns will be conducted through NGOs/INGOs. Extension services might also be provided by professional organizations such as the Agricultural Association, the Veterinary Association, the Agricultural Technicians Association, and the Paravet Association. Media will be regularly briefed by the spokesperson of the MOAD, particularly after the meetings of CADIC at the central level, and after meetings of RADS and DASC at the local level; the media will also be invited to access information through information desks and regular workshops and conferences.

7.22 Organizational Changes in MOAD and related Institutions

519. As a multisector development strategy, the ADS requires adequate mechanisms to facilitate coordination and implementation at the national and local level. A number of mechanisms have been described in the previous sectionsincluding the NADSIC, the NADSCC, the ATF, and the flagship programs. In the case of MOAD and its Departments, the following sections will further elaborate the organizational changed needed to facilitate implementation of the ADS.

520. The guiding principle of reorganizing MOAD and related Departments is to improve effectiveness in implementation of ADS. The restructuring should keep into account the division of responsibility between MOAD and Departments. MOAD is responsible for formulation of policy, overall coordination and planning, development of legislative frameworks, budgetary allocation, ensuring adherence to international and regional commitments, trade promotion, and overall monitoring and evaluation of the agriculture sector; the Departments are responsible for implementation and technical backstopping of the related subsectoral programs.

521. The restructuring of MOAD proposed in the ADS includes the following:

a. Establish a Policy and International Cooperation and Coordination Division (PICCD);
b. Establish an Agricultural Trade Division;
c. Creation of ADS Implementation Support Unit -the PICCD ;
d. Assure open placement of professional and technical staff from within MOAD positions for all competent and qualified staff irrespective of their original faculty or departmental specialization.

522. The restructuring of NARC towards a more decentralization structure has been discussed in section 5.3.2. For the DFTQC, the ADS suggests (i) to establish food quality control regional laboratories in all five regions; and (ii) to establish food quality regulation offices in all districts.For the DOA, the ADS suggests to consider a detailed study for the establishment of a separate Department of Horticultural Development. The ADS does not suggest any specific restructuring of DLS at this stage.

523. For the Agriculture and Forestry University and agricultural colleges the ADS suggests: (i) to establish agricultural colleges in the districts wherever it seems feasible; (ii) to establish an agribusiness department in the Agriculture and Forestry University; and (iii) to establish a Technology Dissemination Department in the Agriculture and Forestry University.

524. The ADS also indicates the need of an in depth administrative and management survey of MOAD and related department (see paragraph277).

7.23 Exit Strategy for APP

525. The preparation of the ADS and its approval by the GON will coincide approximately with the ending of the APP in 2014. The APP has been reviewed at different stages; an early review was conducted in 2001-2005 during the Agriculture Sector Performance Review (ASPR) and more recently in 2006 with the APP Implementation Status Report (APP-ISR). In the period subsequent to 2007, it was increasingly perceived by different stakeholders in the Government of Nepal (GON) and society at large that the initial formulation of the APP required revision in view of several factors including (i) a new national and international context; (ii) a general perception that the APP had not been successful in achieving its main targets; and (iii) the period of validity of the APP (1995-2014) approaching its end and the need of a new long-term strategy.

526. The review conducted by the ADS TA team has highlighted a mixed performance of the APP and highlighted some key lessons. Some of the key ideas that were formulated under the APP remain valid in the ADS including the focus on research and extension and technology as a driver of growth, the emphasis on commercialization of smallholder farmers, the recognition of women as critical human factor in agriculture, the importance of rural infrastructure (particularly rural roads and rural electrification) for agricultural development.

527. At the same time, several new approaches and programs are required for the ADS that were not part of the APP such as the role of governance; the role of farmers, cooperatives, and private sector in planning, decision making, and monitoring of the ADS; the need of addressing land issues; the establishment of community based service centers; the integration of smallholdres with dynamic value chains; the promotion of agro-entrepreneurship and competitiveness; the empaphis on trade promotion and net exports; the development of quality assurance systems; capacity building of service providers at village level; climate change and resilience building measures; and measures to promote not only food security but also nutrition security.

528. The approval of the ADS will represent the end of the APP as the official strategy for long-term development of agriculture sector in Nepal.

8 FOOD AND NUTRITION SECURITY

529. One of impacts of the ADS is to ensure food and nutrition security (FNS). The FNS dimension is underlying the overall strategy and is present in all components and many of the activities of the ADS. The ADS is also aligned with the *Multi-Sectoral Nutritional Plan*and the *Food and Nutrition Plan of Action* (prepared with support of FAO).

8.1 Food and Nutrition Security Definition and Targets

530. The definition of FNS proposed by FAO in 1996[69] entails the aspects of food availability, food access, food use and utilization, and stability, and is also related to the dimensions of inclusion and livelihoods of the ADS vision statement. FNS is a multisector concept; even though agriculture is not the only determinant of food security, it is certainly a major one. The vision for the agriculture sector in Nepal implies that higher agricultural growth is reflected not only in additional income but also in the availability, access, and utilization of more nutritious food, particularly of those who are currently food insecure. Food and nutritional security should entail a more diversified agricultural production system with a larger role of animal and horticultural products. As urban markets and international food trade increase, food safety issues will also become more important aspects of food and nutrition security.

531. Indicators and targets of FNS in the ADS are reported in Table 47. They include: *food poverty* defined as the proportion of people below a poverty line determined by a basket of food consumption able to meet the caloric requirement of 2,200 kcal/person/day; *stunting* defined as the percentage of children under 5 years of age who are below a certain norm for height for age; *underweight* defined as the percentage of children under 5 years of age who are below a certain norm for weight for age; *wasting* defined as the percentage of children under 5 years of age who are below a certain norm for weight for height; and *chronic energy deficiency of women* in reproductive age, measure by a low Body Mass Index (BMI). Monitoring and evaluation of these indicators will be undertaken by the ADS in coordination with other agencies involved in FNS.

[69] The 1996 World Food Summit adopted the following definition: "Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

Table 47 Indicators and Targets of Food and Nutrition Security in the ADS

Indicators	Current Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
Food Poverty	27.6%	16%	11%	5%
- % stunting (height for age) among under 5 children - Underweight (weight for age) among under 5 children - Wasting (weight for height) among under 5 children - Women in reproductive age with chronic energy deficiency (measured as low BMI)	37.4% stunting; 30.1% underweight; 11.3% wasting; 18.1% women with low BMI	29% stunting; 20% underweight; 5% wasting; 15% women with low BMI	20% stunting; 13% underweight; 2% wasting; 13% women with low BMI	8% stunting; 5% underweight; 1% wasting; 5% women with low BMI

8.2 Contribution of ADS Component 1 on Governance to Food and Nutrition Security

532. All outcomes, outputs, and activities of the ADS will contribute to improve FNS either directly or indirectly. At the same time, the ADS will address the food and nutrition security needs of the most disadvantaged rural population including lactating and pregnant women, janajatis, dalits, and groups in disadvantaged regions such as the Karnali.

533. Under ADS Component 1 on Governance one set of activities is entirely dedicated to improved FNS of disadvantaged groups. The ADS realizes that without credible programs to alleviate the FNS conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. These activities will be organized under one national Flagship Program referred to as the Food and Nutrition Security Program (FANUSEP). The Program will consist of three subprograms: the National Food Security Project (NAFSP), currently been finalized as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security Plan of Action (FNSP), currently been finalized with assistance of FAO; and a new targeted national food and nutrition security project to be designed and implemented to complement NAFSP and FNSP. In order to maximize ADS synergies with existing and planned similar programs and improve targeting it will be essential to coordinate with the Multi-sector Nutritional Plan (MSNP).

534. In addition to programs to address the FNS of the most disadvantaged groups and regions of Nepal, the ADS includes GESI and Nutrition mainstreaming, and support to the formulation of legislation such as Rights to Food and Food and Nutrition Security Act. The ADS through its FANUSEP Program Manager will coordinate with ongoing food and nutrition security projects, such as Feed the Future funded by USAID, programs supported by WFP, and programs funded by GON and other development partners within the umbrella of the Multisector Nutritional Plan (MSNP) to ensure that the most food insecure rural households and farmers are reached by various programs. The Program Manager of FANUSEP will report to the subcommittee on food and nutrition security of NADSCC.

535. ADS will support strengthening the capacity of the central and district food security coordination mechanisms such as the High Level Nutrition and Food Security Steering Committee (HLNFSSC) and the Nutrition and Food Security Coordination Committee (NFSCC) at NPC level and the District Nutrition and Food Security Steering Committee led by DDC at the district level. This will enhance the contribution of ADS towards MSNP and involves all the key actors on food security and nutrition.

536. ADS will promote formulation of Rights to Food and Food Sovereignty Legislation and monitor their implementation. The rights to food and food sovereignty principles were established in the interim constitutions and are likely to be incorporated in the new constitution of Nepal. The interim constitution Article 18 has a view of Food Sovereignty as right to food or perhaps right to food sufficiency. The ADS is consistent with these principles provided they are not intended to preclude international trade in food and will monitor the implementation of the principles during the course of the ADS.

8.3 Contribution of ADS Component 2 on Productivity to Food and Nutrition Security

537. Component 2 of the ADS on Productivity has an impact on FNS by (i) increasing the volume of food production in Nepal in a sustainable way through higher productivity and sustainable use of natural resources; and (ii) reducing vulnerability of farmers through improved food/feed/seed reserves, improved preparedness and response to emergencies, and climate smart agricultural practices.

538. Increased sustainable productivity will affect not only the production of foodgrains to achieve self-sufficiency and possibly a trade surplus; but it will also affect the production of vegetables and fruit, oilseeds, pulses, and animal proteins (milk, eggs, meat, and fish) through improved practices in seed production and distribution, irrigation, plant protection and nutrition, breeding, and animal nutrition. The outcome will be a more diversified agricultural system able to supply products that meet the demand for a richer nutrition of the Nepalese population, in addition to the demand for exports of several products where Nepal has a comparative advantage. This will require mainstreaming of nutrition in both the extension programs and in agricultural

education programs, two activities that are also incorporated in the ADS formulation. In addition to the main foodgrains and main vegetables and animal protein sources, the ADS will also contribute to the preservation and utilization of local products that do contribute to food and nutrition security of remote areas. The localized needs for these indigenous foods and the requirements in terms of knowledge support and demonstrations will be conveyed to the research and extension system by the Community Agricultural Extension Service Centers located in each VDC.

539. Impact on FNS will also be through strengthening resilience of farmers and communities to shocks of various nature (pest attacks, disease, flooding and droughts, etc.). The ADS will promote the development of food, seed, and feed reserve systems and early warning systems to improve preparedness and response of communities and households to extreme events.

8.4 Contribution of ADS Component 3 on Commercialization to Food and Nutrition Security

540. Component 3 of the ADS on Profitable Commercialization has an impact on food and nutrition security by (i) increasing income of farmers; (ii) improving access to markets and (iii) reducing postharvest losses.

541. Integration of smallholder farmers and farm workers with dynamic value chains will be primarily reflected through their higher income and improved access to markets. This in turn will entail a richer and more diversified diet of the rural population. Of particular significance will be the development of the national programs on dairy, vegetables, maize, and pulses. The development of effective value chains for these commodities will imply the availability of a larger and more convenient supply of quality and affordable products highly relevant to a protein and micronutrient-rich diet.

542. The development of commercialized agriculture will accomplish an improvement in postharvest systems that will be reflected in lower postharvest losses and availability of a greater range of food products over a longer period of the year.

8.5 Contribution of ADS Component 4 on Competitiveness to Food and Nutrition Security

543. Component 4 of the ADS on Competitiveness has an impact on food and nutrition security by (i) improving food safety; (ii) relying upon trade for a more diversified diet; (iii) accelerating the growth of micro, small, and medium agroenterprises including those headed by women, youth, disadvantaged groups, and individuals based in disadvantaged regions.

544. The food safety situation in Nepal needs considerable improvement in terms of policies, institutions, surveillance, technology, and inspection. The ADS promotes several measures including the establishment of district level offices of the Department of Food Technology and Quality Control to assure improved food safety standards throughout Nepal. Improved food safety in turn entails improved nutrition and food utilization.

545. The ADS envisages a situation in which Nepal will be a net agricultural and food exporter, a strategy that not only ensures food reliance but also allows access to a broader availability of food items through trade.

546. Competitiveness cannot be achieved without the contribution of a vibrant agribusiness sectors consisting of micro, small, medium, and large enterprises. By promoting the emergence of sustainable and competitive agribusiness enterprises, the ADS will contribute to growth of the non-farm sector in rural areas. A more vibrant rural non-farm sector implies higher rural income and lower rural food poverty.

8.6 Monitoring and Evaluation of Food and Nutrition Security in the ADS

547. FNS is a cross sectoral issue and its monitoring requires a multi-sectoral approach. Such approach needs to be guided by coherent principles to ensure that the different efforts implemented are linked together to achieving an efficient and effective implementation of food and nutrition security monitoring system. The ADS will support the institutionalization of the NeKSAP system already existing at MOAD as a project supported by WFP through EU. Improved monitoringof FNS will also require coordination with other agencies and programs particularly the MSNP. A subcommittee on FNS and Food Safety will be established by the NADSCC.

9 MONITORING AND EVALUATION

9.1 Introduction

548. The ADS framework includes a Vision, Outcomes, Outputs, and Activities. Progress towards the vision can be monitored by considering the Vision targets and indicators. Similarly, targets and indicators for the Outcomes. A number of indicators for the Outputs will be presented in this chapters.

549. Monitoring and evaluation is one of the main outputs of the Governance component. A number of activities related to monitoring are described in the output 1.6 of the Governmance component. A specific system for monitoring and evaluation at the central and district level will be formulated at the beginning of the ADS and monitoring capacity of central and district level institutions will be strengthened. The new ADS monitoring system will be linked to the existing monitoring mechanisms such as the Nepal Khadya Suraksha Anugaman Pranali (NeKSAP: Nepal Food Security Monitoring System), District Poverty Monitoring System (DPMAS), Poverty Monitoring System (PMAS) and other monitoring and evaluation mechanisms.

9.2 Monitoring and Evaluation of the ADS

550. The ADS needs to be monitored regularly, professionally, and in a participative manner. Monitoring division and units will be strengthened at the Ministry and department levels and will be provided support and capacity building by the ADS Implementation Support Unit.

551. In addition to project and program monitoring, the ADS will require regular policy monitoring to be carried out by Policy and International Cooperation coordination Division . Monitoring of the ADS will go beyond inputs and output monitoring and include outcomes and impact monitoring according to the targets and design monitoring framework of the ADS programs. Monitoring reports will be publicly available both in Nepali and English and discussed regularly at national and local events.

9.3 Monitoring Vision, Outcomes, and Outputs

552. The ADS Vision and its targets are reported in Table 18, the **impacts** and its indicators are reported in Table 19; targets for the **outcomes** are reported in Table 20, and preliminary indicators for the **outputs** are provided in the following Table 48 to Table 51.

Table 48 Output Indicators for Outcome 1 on Improved Governance

Output	Indicators
1.1 Credibility of policy commitment	• Quarterly press releases from GoN on ADS • Section on Policy Credibility in the Annual ADS M&E report • Regulation on tenure of key positions approved and enforced • Independent review of ADS every 5 years
1.2 Improved coordination among institutions involved in the ADS implementation	• Amendments of NSC and CADIC approved and enforced • Quarterly meetings of NADSCC, CADIC held and minutes available on ADS website • Subcommittees of NADSCCestablished • Subcommittees of NADSCC held meetings quarterly and minutes available on ADS website • RADC and DADC meetings held quarterly • Section on coordination in the Annual ADS M&E report • CADIC Annual Report on ADS
1.3 Integrated planning	• Regulation on NPC and multisector plans • Report by NPC on consistency of periodic plans and budgets with ADS • MOAD report covering ADS produced annually
1.4 Effective implementation support	• ADS implementation guidelines and implementation manual • ADS implementation monitoring reports (biannual) • Number of officials trained in policy analysis and policy monitoring • Policy performance reports (annual) • Draft Annual Report on ADS • Policy workshops and presentation of ADS implementation • Policy studies • Briefings to NPC, CADIC, NSC, and NSC subcommittees
1.5 Mechanisms established for gender equality and social and geographic inclusion in the ADS	• FSED staff trained on GESI • GESI statistics consolidated by FSED staff • GESI staff at district level • GESI staff at other agencies involved in the ADS

Output	Indicators
	• Reports on GESI-responsiveness of Extension and Research • GESI strategy developed • GESI section on the ADS annual report
1.6 Timely and effective monitoring and evaluation of the ADS	• ADS monitoring system established • ADS monitoring reports published quarterly • NeKSAP is institutionalized into the government system and operational
1.7 Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS	• ADS website • ADS information desk at Policy and Interanational Cooperation Coordination Division of MoAD • ADS information desks at Departments, Regions and Districts • Annual ADS conference
1.8 Enhanced capacity of key institutions involved in ADS coordination and implementation	• Capacity needs assessment and capacity plan of key institutions • Monitoring report on capacity building plan
1.9 Improved food and nutrition security of most disadvantaged groups and rights to food	• Number of beneficiaries from disadvantaged groups • Income of beneficiaries • Nutritional outcomes (stunting, wasting, undernutrition)
1.10 Performance-based management system established	• System established and piloted • Performance improved

Table 49 Output Indicators for Outcome 2 on Higher Productivity

Output	Indicators
2.1 A decentralized extension system responsive to farmers and agroenterprises' needs	• Establishment of CAESC • Farmers reached by extension services • Number of demonstrations • Adoption of improved technologies • Joint programs with Education and Research organizations
2.2 A decentralized research system	• Establishment of new NRI

Output	Indicators
responsive to farmers and agroenterprises' needs	• Establishment of Research Stations • Generation of new technologies • Joint programs with Extension and Education organizations
2.3 A strengthened agricultural education system	• Establishment of Department of Agribusiness • Improvement in Facilities of Agricultural and Forestry University and institutes • Establishment of New Regional Agricultural Colleges • Improved capacity of vocational school • Joint programs with Extension and Research organizations
2.4 A farming sector composed of adequately sized farms that use land efficiently and sustainably	• Land leasing regulations and practices expanded • Larger commercial farms managed by cooperative or agroenterprises • Completion of cadastral surveys • Land tenancy disputes reduced
2.5 Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	• Area under year round irrigation Increased • Increased cropping intensity • Increased water productivity • Increased cropping intensity
2.6 Timely access to quality agricultural inputs at affordable price.	• Vouchers policy to access agricultural inputs and extension established • Policy for gradual transformation of subsidy system into market based system
2.7 Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	• Seed replacement rate increased. • Public and private sector investment in seed sector increased
2.8 A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	• Market system insures fertilizer supply on time • Quality of fertilizer available in the market • Efficiency of fertilizer use increased

Output	Indicators
2.9 A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	• Population of improved animal breeds increased
2.10 A range of mechanization options accessible to farmers through the private sector.	• Mechanization in agriculture • Labor productivity increased
2.11 Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	• Resilient crops varieties released • Number of farmers covered by agricultural insurance • Food reserves system in place • Farmer welfare fund operational • Improved early warning system • Crop and weather forecasting available to farmers on mobile
2.12 Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.	• GAP/GVAHP standards formulated • Adoption of good practices by farmers • Number of farmers and ha certified
2.13 Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	• Forestry NTFP output • Leasehold forestry output • Forestry timber output • Value of forestry products captured by women and disadvantaged groups • Employment created by forestry sector

Table 50 Output Indicators for Outcome 3 on Profitable Commercialization

Output	Indicators
3.1 Improved investment climate for agricultural commercialization	• Private and cooperative investment in commercial agricultural production and agribusiness
3.2 Contractual arrangements for commercial agriculture	• Number of ha or herds under contract farming
3.3 Tax policy that supports an efficient commercial agriculture sector	• Consistent tax policy to promote investment in agribusiness and agriculture greed and implemented
3.4 A variety of competitive and demand-driven financial and agricultural insurance products.	• Agricultural credit volume and outreach • Number of financial products available to farmers • Agriculture/livestock insurance coverage
3.5 Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	• Value of the production and postrproduction in each prioritized value chain • Value added by stakeholder
3.6 Rural roads network expanded.	• Section on agricultural roads under District Technical Office established • Road length (km) constructed • Quality of roads after 2, 4, 6 years of construction
3.7 Agricultural market information and ITC products for market intelligence.	• Number of farmers with access to ICT market information products • Number of farmers with access to ICT market intelligence products
3.8 Expanded rural electrification and renewable energies.	• Section on Power development at MOAD established • MW of renewable energy available to farmers

Table 51 Output Indicators for Outcome 4 on Increased Competitiveness

Output	Indicators
4.1 Market infrastructure developed	• Total value of investment in market infrastructure • Total value of produce going through major agricultural markets
4.2 Growth of innovative small and medium agribusiness enterprises	• Number of agroenterprises developed by different groups • Value of output of agroenterprises developed by different groups
4.3 Growth of food and agricultural	• Value of exports of food and agricultural exports

products exports	• Value of imports of food and agricultural exports
4.4 Enhanced food safety and quality	• Percentage of exports that are certified • Percentage of domestic production that is certified • Occurrences of food safety incidents • Rejections of exported products due to SPS compliance issues

9.3.1 Linking Monitoring to Good Performance

553. Monitoring in the ADS will not only identify progress towards the Vision and indicate possible problems, but it will also identify good performance and link performance to rewards. The monitoring system should at the minimum be able to trace indicators at the district level for agricultural production, agricultural income, disbursement, satisfaction of beneficiaries, progress in implementation, etc.

554. Based on observed indicators of good performance, a reward to the best 5 perfoming DADOs or DLSOs will be provided every year, provided that their performance is above the set minimum threshold (see section 5.2.10). An **ADS Good Performance Fund (AGOPEF)**will be established and managed by the the ADSISU initially on a pilot basis and be replicated and institutionalized in case of positive results.

10 ROADMAP

555. The ADS provides a strategy for the next 20 years (2015 to 2035 AD) agricultural transformation of Nepal. This is a long period during which inevitably great changes will occur. The ADS provides a framework for the development of the agriculture sector that will need to be improved and updated several times during this period.

556. As in most other journey, the first steps are the most important. To embark on the ADS road, several conditions have to be satisfied for the journey to be a successful one. These include:

i. Government commitment
ii. Policies and Regulations for ADS Implementation in place
iii. Consensus of key stakeholders

iv. Development partners support

557. Each of these conditions needs to be verified through observable indicators. The following section will explain the methods of verification of the initial necessary conditions for the ADS success.

10.1 Government Commitment

558. Government commitment to the ADS will be gauged by three main indicators, related to finance, legislation, and institutions. In particular:

i. **Medium term budget commitment by central government and local government (DDC and VDC)**. The commitment to the ADS is not only in terms of the resources, but also in terms of support to the ADS programs, so that sufficient planning horizon and security of program finance can be established to motivate stakeholders and promote private investment and development partners' commitment.

ii. **Tenure of key positions**. Some of the key positions in the implementation of the ADS, including National Program Managers, and senior civil servants involved in the ADS should secured sufficient length of tenure to carry out their functions properly. This might require policy or regulations to be formulated and enacted.

iii. **Establishment of key units.** The National ADS Implementation Committee (NADSIC), the ADS Implementation Trust Fund (ATF), the Coordination sub-committees of NADSCC, and the ADS Implementation Support Unit (ADSISU) need to be established to ensure implementation of the ADS.

10.2 Policies and Regulations for ADS Implementation

559. ADS implementation requires formulation and approval of various policies and regulations. Some of these policies and regulations need to be enacted at the early stages for the ADS, particularly those related to the governance dimension (see Table 52).

Table 52Examples of Policies and Regulations needed for implementing the ADS

Governance	Productivity	Commercialization	Competitiveness
1. ADS Implementation Support Unit (ADSISU)	1. CAESC	1. Contract farming	1. Innovation Funds

2. Composition of NADSCC and Subcommittees	6. NARC restructuring	5. Value Chain Development Alliances	4. Quality and Safety regulations
3. Composition of CADIC, RADC, DADC	7. Dept Agribusiness Agricultural University and Ag Colleges	6. Crop and livestock Insurance regulations	5. Food safety law
4. ADS Information desks	8. Vouchers for extension and input	7. New Financial Products	
5. Establishment of NADSIC	9. Land Leasing		
6. ADS Implementation Trust Fund (ATF)			
7. Tenure of key positions			
8. Farmers' Commission			

10.3 Consensus of Key Stakeholders

560. As a key national strategy for the next 20 years, the implementation of the ADS cannot be just a technocratic or bureaucratic exercise. The strategy aims to accelerate inclusive and sustainable growth of the agriculture sector and to smooth the agricultural transition of Nepal. As such, its implementation cannot even be conceived without the presence of a substantial consensus among the key and leading stakeholders: the government, the farmers, the private sector, the cooperative sector, and the major political and social forces.

561. In a very diverse and increasingly open society like Nepal, there is a vigorous debate about different approaches to development planning, implementation, and resources allocation. Given the diversified nature of society and political opinions, the ADS will be constantly debated and at times its implementation might be slowed down by a wide divergence of opinions.

562. The condition to start implementation of the ADS however is not the utopist situation in which there will be full consensus about all the measures proposed in the action plan and roadmap. For the ADS to proceed, it is important to have maximum, even though not unanimous consensus about the approach, vision, and measures proposed for implementation.

563. In order to assure this consensus it is important to have a pledge by the leading stakeholders that indeed they are supporting the implementation of the ADS and commit to contribute to the solution of problems that inevitably will be encountered during implementation.

10.4 Development Partners Support

564. The ADS provides an overall strategy for improving coordination between GON and development partners in the field of agricultural development. A strong commitment to the ADS by the GON and leading stakeholders together with a well organized and reasonable strategic approach can provide reassurance among the donor community that investment in the agriculture sector might lead to the desired development outcomes. If that is the case, then a pledge of multiyear commitment to the ADS Implementation Trust Fund (ATF) might again contribute to improve funding and delivery mechanisms of the ADS.

10.5 Early Milestones of the ADS

- Before GON Approval
  - Finalize ADS document
  - Extension awareness campaign about the ADS at the central and local level
  - Pledged consensus of key stakeholders (ADS signing ceremony)
  - Indicative support by development partners

- During First Year of Implementation
  - Regulationsstandards and guidelines for NADSCC, NADSISU, ATF and Flagships as appropriate
  - Establish ADSInstitutions
  - FormulateGuidelines for ADS Implementation
  - Recruit Program Managers for ADS Flagships

- Budget allocations to ATF by Donors
- Establish Farmers' Commission
- Update relevant data and statistics

10.6 ADS as a Living Strategy

565. ADS is a living strategy owned by the GON and the ADS leading stakeholders. Through regular monitoring and periodic review and evaluation, the details of the ADS will continuously evolve and improve. An external 5-year review of the ADS will be commission and widely discussed by government and civil society.However, the ADS will be reviewed and revised just after the endorsement of new constitution.

APPENDIX 1. REFERENCES

ACI (2003), "Fertilizer use study", Agrifood Consulting International, Bethesda, Maryland, US.

ADB (2011a), "Outlook for Nepal". ADB Resident Mission, Kathmandu, 2011

ADB (2011b), "Demonstrating Enhanced Productivity of Irrigated Agriculture System through Multifunctional Water Users' Associations". ADB RETA 6498, Manila 2011

ADB (2011c). "Update for Nepal". ADB Resident Mission, Kathmandu, February and May 2011

ADB (2010a), "Nepal: Community Irrigation Project" Report and Recommendation of the President. Asian Development Bank, Manila.

ADB (2010b), "Nepal: Community Irrigation Project" Mission Response to Comments from OPR on Water Use Efficiencies, Asian Development Bank, Manila.

ADB (2010c), "Water Operational Framework 2011-2020 Draft 2", Asian Development Bank, Manila.

ADB (2010d), "Nepal: Operational Strategy and Program for Water Resources, Assessment Report". Singh, Achyut Man, Asian Development Bank, Manila.

ADB (2010e), "Development and Dissemination of Water-Saving Rice Technologies in South Asia" , TCR, RETA 6276-REG, ADB Manila 2010.

ADB (2009), "Country Assistance Program Evaluation: Nepal—Delivering Assistance in a Challenging Environment". Manila. 2009

ADB (2008), "Rural micro-finance loan project 1998-2007". TCR, ADB Manila 2008

ADB (2006),*Report and Recommendation of the President to the Board of Directors: Proposed Sector Development Program Cluster of Loans, Asian Development Fund Grant, and Technical Assistance Grant to Nepal for Rural Finance Sector Development Cluster Program.*Manila (Loan 2268-NEP, for $56 million, approved on 26 October).

ADB (2000), Technical Assistance to the Kingdom of Nepal for Agriculture Sector Performance Review. Manila (TA 3536-NEP, for $600,000, approved on 4 December).

Adhikari, D. (2010). *Promoting Nepal's Trade in the perspective of Bilateral and Multilateral Trade.*Economic Policy Network II (ADB TA 7042-NEP), Ministry of Finance, Kathmandu 2010.

ANZDEC (2006) "Agricultural Sector Study on Commercialization, SPS and Quality Control", Interim Report, MOAC, Kathmandu.

ANZDEC, ACI, and CMS (2002) "Agricultural Sector Performance Review" ADB TA No. 3536-NEP, Final Report, Asian Development Bank, Manila.

APP (1995a), "Agriculture Perspective Plan": (APP), Kathmandu: Agricultural Projects Services Centre, Kathmandu (APROSC) and John Mellor Associates. Inc. Washington DC (JMA).

APP (1995b), “Agriculture Perspective Plan: Irrigation and Water Control: Background Technical Paper by Sharma CK and Poudel SN”, Kathmandu: APROSC/JMA.
APP (1995c), “Agriculture Perspective Plan: Irrigation Management, On-farm Water Use and Water Pricing CB Shakya”, Kathmandu: APROSC/JMA.
Asian Development Bank, World Bank, Department for International Development of the United Kingdom, and International Labor Organization. (2009). “Country Diagnostic Studies—Nepal: Critical Development Constraints.” ADB, Manila 2009
Bhattarai, T.C. (2005). "Opportunities and Constraints in Nepalese Poultry Industry", March 2005, Kathmandu and Nepal Hatcheries and Feed Association, 2005.
Birendra Basnyat (2010). “Improving seed security through the expansion of seed multiplication farms in the public, private and cooperative sectors in Nepal”. Economic Policy Network II, MOF/ADB, Kathmandu December 2010
Birner, R. and D. Resnick (2010): The Political Economy of Policies for Smallholder Agriculture, in: World Development, Vol. 38 (10): 1442-1452.
CIWEC (1990), “Master Plan for Irrigation Development in Nepal, Canadian International Water and Energy Consultants & East Consult
CMIASP (2010), Mid-term Review
Development Vision Nepal (2006), “Shallow Tube Well Impact Assessment Study, Kathmandu. Nepal (March 2006)
DOI (2005), “Nepal: Irrigation Development Vision, An action plan for irrigation development for the period 2005-2012” , Kathmandu
Energy Minister’s Statement (2011).Nepal Electricity Conference. Ministry of Energy, 19 May 2011.
ESCAP (2011).“Economic and Social Survey”.UN Economic and Social Commission for Asia Pacific. Bangkok, 2011
Export Statistics (2011). Trade and Export Promotion Center, Ministry of Commerce and Supplies, Nepal 2011.
Federation of Community Forestry Users Nepal, from the database of www.FECOFUN.org.np accessed July 2011
GDC (1994), “Reassessment of Groundwater Development Strategy for Irrigation in the Terai” (A discussion paper).
Goletti, F. (2001).“The Impact of Fertilizer Subsidy Removal in Nepal”.ASPR Discussion Paper No.1, TA 3536-NEP. ADB Manila 2001
Goletti, F., Bhatta, A., Gruhn, P. and U. Dulal (2001). “Farmer Survey Report”, Discussion Paper No.4, TA 3536-NEP, ADB Manila 2001
Goletti, F. (2011).International Experience in Agricultural Transformation and Implications for the Agriculture Development Strategy in Nepal.Paper presented at the Nepal ADS Conference, Kathmandu, 29 November 2011.
Guimbert, S. and Sailesh Tiwari (2007). SIMPLE MACROECONOMIC MODEL FOR NEPAL, June 2007, Report No. SASPR-11
Hancock, I. (2010). “Agribusiness and Value Chains Report”.In RRP Supplementary Technical Annexes, ADB TA 7928-NEP, Manila 2010.
IFAD (2006) “Nepal Strategic Opportunities Programme”. IFAD Rome 2006
IFPRI.(2010). *Nepal Food and Nutritional Security.*New Delhi: IFPRI 2010
Kalu IL et al. (2004), “OFWMPP, DOI Nepal: Impact Assessment Study Report,

Kansakar, D.R. (2006), "Ground Water Irrigation Development Vision", DOI Nepal
Karmacharya, B.K. (2010). *A Study on cross Border Informal Trade between Nepal and India on Selected Agricultural Commodities*.FAO/ Nepal Council for Development Research, Kathamandu 2010.
Landon-Lane, C. (2011). "Meeting notes: AIC Ltd.", ADB TA 7762(NEP): Preparation of the Agriculture Development Strategy, Kathmandu, June 2011.
Michaud, M. (2011). "Report on Lessons Learned EU Food Facility INGO Projects, EU Cooperation Office, Kathmandu 30 June 2011
MOAC (2004), "National Agriculture Policy" Kathmandu
MOAC (2005), "Statistical Information on Nepalese Agriculture, Agri-Business Promotion and Statistics Division 2004/05, Kathmandu
MOAC (2010), "National Agriculture Sector Development Priority (NASDP) for the Medium-Term (2010/11 - 2014/15) Kathmandu (reviewed abstracted)
MOAC, WFP, FAO (2009).*Winter drought in Nepal: Crop and Food Assessment*. Kathmandu: WFP 2009
MOCS (2011), Revised Legislative Action Plan
MOSC (2010).Trade Conference Proceedings.MOSC Kathmandu 2010.
MOSC (2010).*Nepal Trade Integration Strategy and Action Matrix*.MOSC Kathmandu 2010.
MOE (2010, National Adaptation Programme of Action (NAPA) to Climate Change, Ministry of Environment
MOI (2003) "Irrigation Policy, Kathmandu
National Dairy Development Board (2001). "National Milk Marketing and Strategy Study", NDDB, Kathmandu March 2001
NDHS (2006) Nepal Demographic and Health Survey.Ministry of Health and Population, New ERA, and Macro International Inc. Kathmandu, Nepal.
NEAT (2012) Nepal Fertilizer Demand and Plant Nutrient Assessment, a Study prepared by Chemonics International with the support of Dr.Raymond Hoyum and Project Research and Management (PRAM) Associates under USAID Prime Contract No. EEM-I-00-07-00008, AID-367-TO-11-00001, November 2012
Nepal Tea Association (2000)."National Tea Policy". Kathmandu, 2000
NPC (2004). "Rural Infrastructure Policy", National Planning Commission, Kathmandu 2004
NPC (2010). "Base Paper of Three-Year Plan 2010/11 – 2013/14", National Planning Commission, June 2010
OneWorld (2010) "Effects of Climate Change - Nepal briefing. September 2010. http://uk.oneworld.net/guides/nepal/climate-change
Pandey, P. R. (2009). *Trade Policy as an Instrument to Ensure Food Security: A case study of Nepal.*Asia-Pacific Trade Economists' Conference of Trade-Led Growth in Times of Crisis. UNESCAP, Bangkok 2009
Perry, S. (2000). *Enabling Development: Food Assistance in Nepal.*World Food Program, Nepal 2000.
Pyakuryal, B., Y.Thapa, D. Roy (2005). *Trade Liberalization and Food Security in Nepal*.MTID Discussion Paper no.88.IFPRI, Washington DC. 2010.
Sapkota, C. (2009). *Nepal's Long Term Direction in Global and Regional Trade Policy*. UNESCAP, Bnagkok 2009.

Shakya, B. (2010). *Exports of Ayurvedic Herbal Remedies and SPS Issues*.Managing the challenges of WTO participation: Case Study 31. WTO 2010;
Sharma, S., M. Karkee, L. Gautham, Eds. (2007).“Implications of the WTO Membership on Nepalese Agriculture”. FAO/ MOAC, Kathmandu 2004
Thapa, G. (2009). *Smallholder Farming in Transforming Economies of Asia and the Pacific: Challenges and Opportunities*. Discussion Paper, IFAD
Thapa, G. and R. Gaiha (2011).*Smallholder Farming in Asia and the Pacific: Challenges and Opportunities.* IFAD conference on New Directions for Smallholder Agriculture, IFAD: Rome.
Thapa, Y. (2006), “Constraints and Approach for Improving Fertilizer Supply for Meeting Domestic Demand.” Economic Policy Paper No.30.Economic Policy Network, MOF/ADB, Kathmandu. 2006
USAID (2010). Ensuring Food and Nutritional Security in Nepal: A Stocktaking Exercise. International Food Policy Research Institute USAID, Kathmandu.
World Bank (2004), “Approach to mitigation of groundwater arsenic contamination including new groundwater legislation 2004/09/01 38812 Working Paper (Numbered Series) 30. The World Bank.
World Bank (2008), “Irrigation Sector Project” Project Performance Assessment Report. Report No.: 44438.
World Bank (2010), Water and Development: An Evaluation of World Bank Support 1997-2007.
World Bank (2011), Large-Scale Migration and Remittance In Nepal: Issues, Challenges, And Opportunities, No. 55390-Np, Poverty Reduction and Economic Management Sector Unit
South Asia Region
WECS (2002), Water Resources Strategy Nepal, Kathmandu: Singh Durbar.
WECS (2005), National Water Plan (in Nepali), Kathmandu: Singh Durbar
WFP (2013), Monitoring and Evaluation for Food and Nutrition Security. Assessment, Vision, Options, and Strategy Background Papers for the Preparation of the ADS, World Food Programme, Kathmandu, 2013.

Added References:

ADB (2015), “Key Indicators for Asia and the Pacific 2015”, Asia Development Bank, July 2016. http://www.adb.org/

CBS (1996),“Nepal Living Standard Survey 1995/96”, Central Bureau of Statistics, Kathmandu, Nepal

CBS (2002), “National Sample Census of Agriculture 2001/02”, Central Bureau of Statistics, Kathmandu, Nepal

CBS (2004),“Nepal Living Standard Survey 2003/04”, Central Bureau of Statistics, Kathmandu, Nepal

CBS (2011),“Nepal Living Standard Survey 2010/11”, Central Bureau of Statistics, Kathmandu, Nepal

CBS (2012),“National Sample Census of Agriculture 2011/12”, Central Bureau of Statistics, Kathmandu, Nepal

CBS (2013),"Annual Household Survey 2012/13", Central Bureau of Statistics, Kathmandu, Nepal

CBS (2014), "Population Monograph of Nepal Volume II (Economic Demography)", Central Bureau of Statistics, Kathmandu
CBS (2014),"Annual Household Survey 2013/14", Central Bureau of Statistics, Kathmandu, Nepal

CBS (2014),"Multiple Indicator Cluster Survey 2014", Central Bureau of Statistics, Kathmandu, Nepal

CBS (2015), "Compendium of Environment Statistics Nepal, 2015", Central Bureau of Statistics, Kathmandu
CESD (2016), "Briefing Note for Agriculture and Rural Development Sector Working GroupAgricultural Public Expenditures in Myanmar, February 16, 2016", Center for Economic and Social Development, July 2016. https://myanmarcesd.org/

DFRS (2015), "States of Nepal's Forest", Department of Forest Research and Survey, Ministry of Forest and Soil Management, Kathmandu

DOC (2016), "Foreign Trade Statistics 2015/16 - Preliminary" Department of Customs, Ministry of fiancé, July 2016.http://www.customs.gov.np.

DOE (2014), "Annual Program and Progress Report DAE 2070-71", Directorate of Extension, Department of Agriculture, Ministry of Agriculture and Development, Kathmandu

DOF (2016), "Community Forestry", Department of Forest, Ministry of Forests and Soil Conservation, June 2016. http://dof.gov.np/

DOI (2016), "Irrigation Hand Book", Department of Irrigation, Kathmandu

MOAD (2013), "Statistical Information on Nepalese Agriculture 2012/13", Agri-Business Promotion and Statistics Division, Kathmandu

MOAD (2014), "Statistical Information on Nepalese Agriculture 2013/14", Agri-Business Promotion and Statistics Division, Kathmandu

MOAD (2015), "Statistical Information on Nepalese Agriculture 2014/15", Agri-Business Promotion and Statistics Division, Kathmandu

MOF (2002), "Economic Survey 2001/02", Ministry of Finance, June 2016. http://www.mof.gov.np.

MOF (2003), "Economic Survey 2002/03", Ministry of Finance, June 2016. http://www.mof.gov.np.

MOF (2006), "Economic Survey 2005/06", Ministry of Finance, June 2016. http://www.mof.gov.np.

MOF (2011), "Economic Survey 2010/11", Ministry of Finance, June 2016. http://www.mof.gov.np.

MOF (2015), "Economic Survey 2014/15", Ministry of Finance, June 2016. http://www.mof.gov.np.

MOF (2016), "Red Book 2015/16", Ministry of Finance, June 2016. http://www.mof.gov.np.

MoPIT (2016), "Road, Rail and Transport Development Five Years (2073-2078) Strategic Plan for Prosperous Nepal", Ministry of Physical Infrastructure and Transport, Kathmandu
NBSC (2006), "China Statistical Year Book-2006", National Bureau of Statistics of China, July 2016. http://www.stats.gov.cn/

NBSC (2014), "China Statistical Year Book-2014", National Bureau of Statistics of China, July 2016. http://www.stats.gov.cn/

NDHS (2001), "Nepal Demographic and Health Survey 2000", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
NDHS (2007), "Nepal Demographic and Health Survey 2006", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
NDHS (2011), "Nepal Demographic and Health Survey 2010", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
NFSMS, (2013-2015), "Nepal Food Security Bulletin Vol. 40-47", Nepal Food Security Monitoring System Jointly Produced by the Ministry of Agricultural Development (MoAD) Food Security Monitoring Unit and the World Food Programme (WFP) Food Security Monitoring and Analysis Unit.
NPC (2009), "Thirteen Three Years interim Plan", National Planning Commission, Government of Nepal, Kathmandu

NRB (2015), "Banking and Financial Statistics Mid July 2015, No. 41", Bank and Financial Institution Regulation Department, Statistics Division, Nepal Rastra Bank, Kathmandu

NRB (2016), "Household Budget Survey 2014/15", Nepal Rastra Bank, Kathmandu

Raitzer, D.A., L. C. Y. Wong, and J. N. G. Samson (2015), "Myanmar's Agriculture Sector: Unlocking the Potential for Inclusive", Asian Development Bank (ADB) Working Paper Series No 470 December 2015
SMD (2015), "Soil Management Directorate Annual progress Reports 2014/15", Soil Management Directorate, Department of Agriculture, Ministry of Agriculture and Development, Kathmandu

END OF REPORT-1

Agriculture Development Strategy (ADS)
2015 to 2035

Part: 2

Government of Nepal

Ministry of Agricultural Development

Singhdurbar, Kathmandu

APPENDIX 2. References (Included in Part-1)
APPENDIX 3. CHALLENGES OF THE ADS

A2.1 Productivity – General

566. Assessment of the current status of the agriculture sector (in the main text of this report) shows different measures of productivity and indicates a low development stage. There is still a large potential gap that needs to be filled with improved technology and good practices both in farming and post-production activities. The key institutions involved in the generation, dissemination, and teaching of improved technologies are NARC and DFRS for research, the technical departments (DOA, DLS, DFTQC, DOF, DOI) for dissemination of technologies to farmers and enterprises, and the universities for teaching.

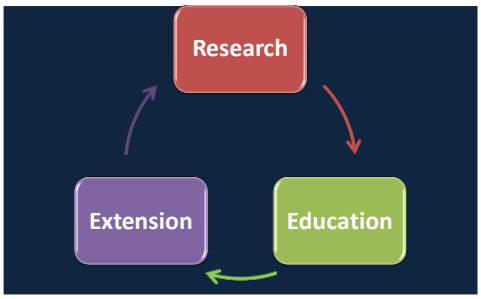


Figure 21 Research, Extension, and Education Triangle

567. Currently these three institutions are separated rather than integrated. As a result, there are considerable communication problems in technology: researchers do not reach farmers, farmers or enterprises do not reach researchers.

568. Budgets for research and extension continue to be low and insufficient to carry out effective work. The number of staff members to reach a large number of farmers is inadequate; the current labor force in research and extension is too small and not sufficiently equipped or provided incentives to do their work effectively.

569. The devolution of institutions to the local level, consistently with the Local Self-Governance Act, is still encountering several problems as the capacity of the local staff is low; the local bodies have not been elected, and the responsibilities and authorities between local and central level have not been clarified yet.

570. Three key problems seem to continue to be neglected, namely (i) the low research budget; (ii) the low number of extension workers; and (iii) the number of graduates of agricultural university (see Figure 22)

Ag. Research Budget / Ag.GDP	= 0.25%
Number of Farmers / Ag. Extension worker(*)	= 1,144
Number of Agriculture Graduates / During 55 years	= 13,083

Source: Economic Survey (2015/16), Red Book (2015/16), DOA (2016), DLS (….) IASS, HICAST, NPI, GAASC, CBS (2012)
(*)Note: These include agri JT/JTA 1,666 (DoA website visited on July 2016), and livestock and veterinary JT/JTA 1,684 (DoLS Annual Report 2010).
Figure 22 Issues in Agricultural Research, Extension, and Education

A2.2 Productivity – Input Supply and Distribution

571. Many of the issues in input supply and distribution today are similar to the ones prevailing in 1995/96 and could be summarized as follows:

- **Access** (quantity, timeliness, quality, price). Inputs are often not accessible in the desired quantity, quality, price, and time.
- **Knowledge and Efficiency of Use** (eg. plant nutrient management). There are still large knowledge gaps about use of inputs. For example, inappropriate nutrients mix of fertilizer is applied and inappropriate use (dosage and timing of fertilizer application) reduces the efficiency of fertilizer by 20 to 50%.
- **Sustainability (**environment, dependency, health). Sloping land cultivation, over-exploitation of MAPs at high altitude, soil degradation, overuse of chemicals, lack of treatment of effluent from intensive livestock farms, etc. are examples of un-sustainable practices. Dependency on foreign importation such as hydrid seeds, lack of testing for pesticide residues or heavy metals and other contaminant in food compromise health and productivity of future generation.
- **Distribution** (pro or against private sector?). The absence of fair competition in the fertilizer distribution system seems to militate against promotion of private sector. On one hand, AIC Ltd and Salt Trading Ltd are given monopoly of the distribution of subsidized fertilizer to cooperatives. On the other hand, illegal importation of fertilizer from India makes business difficult for legal private fertilizer importers.
- **Assured domestic supply** (buffer stock, contract/equity with manufacturers, domestic production, negotiate agreements with India/Bangladesh/China?). A number of options to assure fertilizer domestic supply have been proposed in the past but no systematic study and evaluation has been conducted to inform policy decision. In fact, even basic data on use and imports are missing.

- **Subsidies** (on prices, demonstrations, or improved use?). The debate on fertilizer (particularly for fertilizer and irrigation) has been often politicized and unable to delineate and analyze clear policy options.

Table 53 Key Issues in Input Distribution at a Glance

Input	Issues
Seed	Low replacement for cereals, pulses and oilseeds; limited development of formal seed systems and distribution; most seed used are from informal channels with adverse effects on quality; demand for hybrids increasing but supply constrained and fully dependent on imports.
Fertilizer	AICL and STCL distributed about 331,746 tons of subsidized fertilizer in 2015/16. Alleged demand 500,000 tons; illegal imports not known, due to lack of survey data; imports quality allegedly low; sustainability of subsidy not clear; objectives of policy not clear; private sector development at risk.
Animal Breeds	Shortage of breeding animals (e.g. exotic cattle for cross breeding dairy cows, goat, sheep); inbreeding of fish and yak.
Mechanization	Increasing need to improve productivity and address reduced labor in rural areas due to outmigration. Required farmer organizations to achieve economies of scale (e.g. tractors, ploughing machine, pumps, combine-harvester, processing, deep tube-well borings)

A2.3 Productivity – Seeds

572. The majority of farmers use their own seed harvested from local or improved varieties. Continuous use of such seed for years in a conventional way results into generation of seed yielding much less than their capacity. The informal sector has been dominating seed supply system but seed replacement rate (SRR) has remained unacceptably low[70]. Of the total requirements of the cereal crop seeds, contribution of the formal sector is nearly 15 % by 2014/15 (SQCC database). The share of the National Seed Company (NSC) to the total cereal crop seed supply is less than 5%. Existing seed replacement rate is very low for major cereal crops. Against it, the desirable seed replacement rates for self-pollinated and cross pollinated crops stand at 25% and 33% respectively; average SRR is 13.2% with 13.2% for wheat, 14.5 % in rice, 12.5 % for maize and 4.5 % for pulses/lentils. While about 85% of cereal seed requirements are currently met by the informal sector, this sector is severely constrained by the unavailability of good quality source seed. This is further aggravated by inadequate cooperation between the formal and informal systems of seed production**.** There is inadequate supply of all types of seeds -- breeder, foundation and certified seeds -- due to the lack of basic facilities for seed multiplication and inadequate supervision, monitoring and technical backstopping.

573. Similarly, there are reports which indicate that only five percent of the good quality seed requirement is met from formal sector in major food crops and the rest is fulfilled from informal system. Statistical data published by MOAD in 2015 records that only 9,540 tons of improved seeds were distributed by Nepal Seed Company in 2014/15. In case of vegetable

[70] Birendra Basnyat (2010). "Improving seed security through the expansion of seed multiplication farms in the public, private and cooperative sectors in Nepal". Economic Policy Network II, MOF/ADB, Kathmandu December 2010

seeds, about 1,000 metric tons of vegetable seed were produced in Nepal in 2012/13 (GR Joshi 2015), out of which 6.9 metric tons were exported and the rest was sold in domestic market (TEPC 2012/13). It should be noted that domestic production meets about 51 percent of estimated vegetable seed requirement. However, it appears that vegetable seed production has not eventuated as planned in APP and local open pollinated vegetable seed is produced in only limited quantities, while most hybrid vegetable seed is imported. In 2014/15, vegetable seed requirement was 1,950 tons, vegetable seed production was estimated at 1,045 tons and seed import was 840 ton (SEAN Seed Service Centre Nepal – SSSC/N)).

574. Vegetable seed production was quite beneficial for the small and resource poor farmers in hilly and mountain districts of Nepal. Till two decades ago, Mustang, Dolpa, Jumla, Rukum, and Parbat districts used to produce considerable quantities of different types of vegetable seeds. The program was supported by international and national projects and the system was working well. The seed enterprise was encouraging and very profitable at that time. Increase in accessibility, higher cost of production, alternative employment opportunities and meagre increase in seed price and termination of external supports discouraged seed growers to continue the enterprise. In the current situation, reliable seed production and supply mechanism are lacking in the high mountain districts that could support the timely renewal of seed and adoption of newly recommended varieties. Lack of technical know-how on crop husbandry, lack of decentralized seed supply scheme, lack of varieties especially for rain fed conditions, use of poor seed quality and degenerated variety, inadequate soil fertility management, and insect, pest and disease are the main reasons for low and declining productivity of seeds. Among other factors, this can be explained by the fact that major part of the required seed is obtained from informal sources. Informal seed supply tends to be inconsistent in terms of quality and such seed is vulnerable to new pests and diseases. Also, commercial vegetable growers now prefer to grow hybrid seeds that are mostly imported.

A2.4 Productivity – Fertilizer

575. Fertilizer supply remains critically below demand. The state-owned AIC Ltd and STC Ltd. have not been able to achieve timely, sufficient and profitable fertilizer supply and distribution. During deregulation, the private sector can import and distribute large quantities of fertilizer, but cannot compete well with smuggled fertilizer (which costs lower due to India's subsidy) when there is high price differential between Nepal and India. A substantial amount of fertilizer is imported illegally, much of which is fake or adulterated causing under use and financial damage to farmers who purchase fertilizer in the market.

576. Policy needs revision to include private sector in fertilizer import and distribution in order to meet demand. Fertilizer smuggling does not result in reliable and sufficient supply of quality fertilizer, but more importantly, if uncontrolled, it prevents government and legal private sector from efficiently supplying the required amount of fertilizer. The Government 2015/16 budget for fertilizer subsidy (including seeds)[71] Rs 6.1 billion ($ 58 million) applied to the AIC Ltd and STC Ltd target import of nearly 350,000 MT fertilizer, a level of subsidy

[71]A Government Committee fixes the selling price of fertilizer (Rs 18/kg for urea since 2011 till date, DAP Rs 45/kg and Potash Rs 31/kg since 2012 to date with average selling price at Rs 26/Kg). The subsidy is applied to the difference between the international buying price (about Rs 48 /kg at the custom, 2015), and the fixed sale price.

equivalent to 46 % of the international price of fertilizer at the border. AIC Ltd estimates the total demand for fertilizer is about 500,000MT, and to apply subsidy to this quantity would be a high fiscal cost. A clearer assessment of the fertilizer situation in country (including assessment of use and demand) should be made in order to evaluate the costs and benefit of the current and any future subsidy policy. The fertilizer subsidy must be reviewed in light of effective targeting and impact on smuggling, effect on demand, use, and productivity, as well as its budget implications.

577. The findings of a recent study[72] of fertilizer use and distribution undertaken with funding by USAID indicated the following:

- The quantity of nutrients being used in Nepal is aligned with the Agriculture Perspective Plan (APP) targets; however, there has been a limited increase in productivity. Based on the survey data gathered from farmers, cooperatives, and traders, the use of NPK (nitrogen, phosphorous, and potassium) in Nepal in 2011/12 was 422,547 MT. This figure is comparable to the 2009/10 national APP target for use of NPK which was 436,595 MT. However, the proper use of nutrients remains a considerable constraint to productivity in Nepal.
- The commonly referenced breakdown of formal and informal imports of fertilizer is 30:70 percent, formal to informal imports respectively. Based on the findings of this study, the ratio is approximately 14 percent formal to informal imports. The 2011/12 estimates based on the survey data are 795,295 MT of fertilizer used in the Hills and Terai whereas the official import data for fertilizer is 110,013 MT for 2010/11. Although there is a one year gap in this data, this would imply that 14 percent of the fertilizer used in Nepal is formally imported. The Agricultural Input Company Limited's (AICL's) goal is to import 200,000 MT in 2012. If this goal is fully realized, approximately 25 percent of the total quantity used in 2012 will be formally imported. There is a significant risk in relying on these high levels of fertilizer from the informal market in India, especially in light of India's recent discussions around tightening controls on subsidized fertilizer.
- Given the sizeable amount of fertilizer that enters Nepal through informal markets, quality is a concern. Quality fertilizer and proper use of fertilizer is essential for preventing soil degradation, and maximizing production. 86 percent of farmers recognize AICL fertilizer as good. However, the quality of fertilizer that farmers purchased from unregistered dealers and other informal sources was rated average quality or not considered satisfactory.
- Knowledge of and support for soil management and integrated plant nutrient systems are poor. For example, the majority of famers in Nepal need to use lime, yet only an estimated 75 percent of farmers know about the importance Nepal Fertilizer Demand and Plant Nutrient Assessment of liming. Given the substantial amount of fertilizer being used in Nepal, significant gains in productivity could be made by adopting an effective soil management program. In areas where the Ph level is below 5, productivity losses could be as high as 50 percent. The GON should consider redirecting part of the resources currently used for fertilizer subsidies to soil testing, liming, and proper micronutrient blending to improve the productivity of cultivated land.
- Price was not a determining factor in fertilizer use. As the market is imperfect and supply is severely constrained, it is not surprising that price is not a determining factor in fertilizer use. In fact, household characteristics are more significant factors affecting fertilizer use than price. However, none of these factors that affect use appear significant enough to dramatically alter the demand of fertilizer in the short term.
- Based on these findings, the recommendations provided in this report focus on i) improvements in soil management to improve the effectiveness of the fertilizer being purchased and applied by farmers and ii) addressing the issue of informal supply, minimizing the use of poor quality fertilizer and decreasing the risk involved with relying on the informal supply of fertilizer from

[72]NEAT 2012 Nepal Fertilizer Demand and Plant Nutrient Assessment, a Study commission by USAID on behalf of ADS and undertaken by NEPAL, ECONOMIC, AGRICULTURE, AND TRADE ACTIVITY (NEAT), Contract No. AID-367-TO-11-00001, November 2012

India by increasing the availability of formal/regulated fertilizer. Considerable improvements in productivity would be obtained by addressing these two constraints.

According to the CBS National Sample Census of Agriculture 2011/12, out of the total fertilizers supplied, the fertilizer uses by crops are as follows: paddy 46%, wheat 24%, maize 13%, potato 6%, vegetables 4%, sugarcane 2% and others 4%.

A2.4.1 Soil Fertility

578. Decline in soil fertility all over the country from Terai to mountain is one of the key factors constraining increase in production and productivity in almost all crops and types of farming systems. The main reasons of soil fertility decline in Nepal can be summarized as follows:

- Mostly hilly sloppy areas are more vulnerable to soil erosion due to rain and wind and the rate of erosion is also high there in upland as well as in marginal land.
- Occurrence of organic matter depletion in both Terai and Hills.
- Acidification of soil due to parent material and more use of acidic fertilizers.
- Micronutrient deficiency affecting the production of cereals, vegetables and fruit crops.
- Problem of siltation such as Seti river irrigated area and Narayaani irrigation sector command area.
- Degradation of forest and marginal land.
- Multi-cropping in a year.
- Mono-cropping for long period.
- Low quality of fertilizer.

579. At present farmers use 2.5-3 ton/ha of organic manure for fertility management. Mid-hill soils are receiving more organic manure than Terai where cropping intensity is higher. The national average use of chemical fertilizer is about 97 kg/ha which is not sufficient to meet the nutrient demand of crops (Proceeding of a workshop on Integrated Plant Nutrient Management, 2000, and Economic Survey 2015/16). Thus, there is a large gap between nutrient uptake from soil by crop plants and nutrient supply into the soil resulting into a decline in soil fertility year after year. Focusing on the importance and need for soil fertility management, DOA is implementing the regular programs such as promotion of organic manure and compost, green manuring, balanced use of chemical fertilizers, soil analysis service, trainings, demonstrations, etc.; however, these programs cover only a limited number of farmers due to constraints in human resource, physical facility and linkage and coordination.

A2.5 Productivity – Irrigation

580. There is significant potential to use Nepal's comparative advantage through further developing irrigation systems and improving their operation. Irrigation remains a policy and investment priority. From the economic perspective, investment is required, but it must be for feasible and well-managed irrigation based on adequate economic rate of return from high value crops, multiple field crop systems, and including feeds and fodder for dairy and poultry.

581. Irrigation and agricultural policy and implementation should not be in isolation – irrigation is an input to profitable agriculture, not an end in itself. Program experience[73] is that sustainable farmer incomes are achieved through a cluster or pocket approach involving a critical number of farmers, and that provides not only irrigation, but also raises farmer skills in crop management, provides access to inputs and technology, post-harvest facilities and market linkages. Therefore, access to complementary services is necessary. There is an institutional gap between irrigation and agricultural ministries and their line agencies which needs to be reduced.

582. Over time, farmers in both Hill areas and the Terai have developed simple irrigation systems based on diversion of water from seasonal or permanent streams and rivers. The systems were (and are) referred to as farmer-managed irrigation systems (FMIS). Because of problems with damage to temporary headworks by floods, the Government began a program of assisting selected FMIS to upgrade their primary infrastructure, often through constructing permanent diversions and upgrading primary canals. The schemes are then referred to as "agency assisted" with Agency referring to the Department of Irrigation (DOI). The total area of independent or agency assisted FMIS was estimated by DOI at 0.67 million ha in 2007; and by 2015, this has increased to 0.68 million hectare in case of surface irrigations. Most are relatively small, though some such as Rani, Jamara, Kulariya Irrigation System and Rajapur Irrigation Project exceed 10,000 ha.

583. By 2007, there were 32 schemes totaling 325,919 ha under agency management, which remained the same till 2015 (DOI Handbook of Irrigation 2016). Following a program of irrigation management transfer (IMT) over the last 30 years WUAs are responsible for managing lower level canals in all schemes.

584. Irrigation that is not conventional surface (gravity canal) or shallow or deep tubewell is referred to in Nepal as non-conventional irrigation (NCI). It includes a range of technologies such as drip and micro-spray and is often used to irrigate high value crops in the hills, and in winter and spring in the Terai. NCI has developed over the past 20 years, primarily due to the efforts of a number of international NGOs. The irrigation under NCI system has reached to 5,955 ha (Economic Survey 2016/16)

585. Nepal has immense ground water resources, estimated to exceed around 12 km^3 annual recharge of which less than 1 km^3 is currently exploited for irrigation or domestic and other uses. Total groundwater irrigation in 2015/16 extends to about 391,080 ha (Economic Survey 2015/16) of which shallow tubewells (STWs) contribute 343, 080 ha, deep tubewells 48,000 ha (Based on Madhav Belbase 2015). Groundwater utilization statistics are inaccurate, as changes in command area since construction and (for example) the breakdown of DTWs are not recorded. Similarly, the area of surface irrigation is not known with any accuracy and attempts to assess area, even for a single district, have not been highly successful. A new approach to the collection and updating of irrigation statistics is required.

586. The APP in the irrigation sector built on existing plans to establish large irrigated areas mainly based on groundwater. The APP recommended rehabilitation of surface irrigation, on-farm-water-management, improvement of surface irrigation through irrigation

[73] M. Michaud (2011). "Report on Lessons Learned EU Food Facility INGO Projects, EU Cooperation Office, Kathmandu 30 June 2011

management transfer along with development of new surface irrigation in hills and mountain and groundwater development in the Terai. It suggested development of monsoon and year round surface irrigation schemes in all ecological regions focusing on drip, sprinkler and rainwater harvesting tanks in mountain and hill areas. The management goal of the irrigation effort was to expand farmer ownership and operation. Virtually all schemes would be farmer-managed by the end of the period.

587. APP correctly identified that to be effective, proposals for irrigation development need to be supported by the other key inputs, in particular, fertilizer, roads and power (the last of these particularly to support groundwater development in the Terai). In practice there have been significant deficiencies in these areas with the result that the productivity of irrigated staple crops has changed little since the time of the APP.

588. The APP identifies the main targets to be achieved over the plan period with well-controlled year-round irrigated land increasing from 459,000 ha in 1994/95 to 1.13 million ha in 2014/15, requiring the addition of 34,000 ha/year to the irrigation inventory. By 2010, the APP anticipated that there would be around 516,000 ha of groundwater irrigation, 491,000 ha of year-round and 318,000 ha of monsoon (seasonal) irrigation, for a total of 1.325 million ha. While the total irrigated area was not far short of this level as in 2015/16, with 1.375 million ha irrigated, the areas of groundwater irrigated and year-round surface water irrigated are far below target. Reasons for the shortfall include (i) limited donor support (with only one new ADB project initiated in the 2000s for example), (ii) limited local budget with a sharp decline after 2001/02, (iii) the civil conflict which limited work as well as budget, (iv) the end of subsidies for groundwater development which undermined the key thrust of the APP irrigation policy, and (v) the restructuring of Agriculture Development Bank of Nepal (ADBN), which withdrew from supporting the irrigation sector in around 2003.

589. More remains to be done to fully develop the Terai's groundwater resources, to increase the proportion of year round irrigation in surface schemes, and to increase the production of high value crops. Key lessons to be taken forward to the ADS include:

- The links between irrigation and production inputs. In the absence of adequate supplies of fertilizer, seed, electricity and extension, productivity will remain poor.
- The need to focus on system and on-farm water management, to increase irrigation efficiency and allow more water to reach the tail of canals and systems.
- The need to focus on policy implementation as well as policy development.
- The need to focus on operation and maintenance as well as (and often in front of) new system development.

590. The irrigation sector has moved on since 1995 and new constraints and needs have emerged. Key aspects that the ADS will need to focus on but are not deeply considered under the APP include:

- How to include the poorest and marginal land farmers in the irrigation economy.
- How to extend year round irrigation to additional areas.
- How to provide effective extension services, particularly for higher value crops.
- How to strengthen the WUAs and expand their capacity to manage higher level canals and (in relevant cases) whole systems.

- How to make farmers more self-reliant and less dependent on government for O&M and system rehabilitation.
- How to make irrigated agriculture more commercial, particularly given the increasingly small and fragmented farm plots.

591. The major institutional gaps and deficiencies have been assessed as indicated in the Table below:

Table 54. Major Institutional Gaps in Irrigation

Department of Irrigation	• Excessive focus on new construction • Lack of capacity for holistic irrigation and management • Weak water management in AMIS • Poor maintenance of main and branch canals • Weak statistical capability:
DGWRD	• Combination of regulation and construction in one agency
WEC/WECS	• WEC location under Ministry of Energy limits its ability to be an effective peak water agency • WECS has limited capacity
Directorate of Agriculture Extension	• Extension capacity limited, poor linkage to research and irrigation • Technical knowledge and budget in relation to small irrigation system development limited
DOLIDAR/DTO	• DOLIDAR remains focused on road construction, though this is changing • DTOs have little expertise in irrigation system design

592. Moving from draft to final policies is a slow process in Nepal and there is a need to finalize existing draft policies as soon as possible, including integrated water resources management (WECS) and micro-irrigation and national irrigation policy (DOI). Major issues relate to implementation with little progress often made towards meeting policy objectives. Policy gaps include: (i) a framework for improved and participatory management of larger irrigation systems, (ii) a need to update the groundwater development program in order to expedite development, and (iii) the optimal approach to government support or subsidies to all irrigation subsectors, but particularly including micro-irrigation and groundwater. It is also recommended that an Irrigation Act is promulgated.

593. The formation and operation of WUAs was a focus of the 2000 irrigation rules. A need is seen to revise the rules to allow or encourage competent WUAs to expand their activities into such aspects as domestic water supply, water mill operation, extension, input supply and marketing. These aspects could be incorporated in the proposed new irrigation Act, or as in some countries, WUAs could be authorized to draft their own Act Act.

594. Major investment gaps are considered to be:
- Lack of sufficient budget for groundwater development
- Rehabilitation of most AMIS is required prior to IMT
- Appropriate FMIS need to have their intakes made permanent

- Inter-basin transfer systems need to be studied and developed wherever they are feasible
- Study of multi-purpose dams

A2.6 Productivity – Research and Extension

595. The Nepal Agricultural Research Council (NARC) is a key player in Nepal's agricultural research system. Its priority in the past was on technology generation, mainly on rice, wheat, maize, oilseeds and legumes for irrigated and high input conditions. Few efforts have been made in recent years to develop technologies for rain-fed and resource-poor environments. Moreover, where successful models have been demonstrated, there have been only limited efforts – if any – to upscale them in an integrated manner that encompasses technology generation, capacity building and access to inputs, credits, markets and extension services.

596. NARC's projects are mostly mono-disciplinary, rather than targeted and issue-based multidisciplinary interventions. Although its projects are broad-based and have had some spillover effects on marginal farm households, NARC's organizational structure is not geared to addressing pro-poor issues in terms of critical mass, teams, policy or flexibility.

597. NARC's outreach research activities have not been dynamic enough to design, implement research and disseminate the findings among the intended client base. The sites are limited and poorly resourced, and they are located in the vicinity of NARC research centers located in different agro-ecological zones. Therefore, there are inadequate opportunities for carrying out participatory R&D in the target environment with the active participation of the clientele.

598. NARC's capacity to conduct research has become seriously eroded over the past several years. At present, NARC which has total approved scientific positions of 815 is critically understaffed, with nearly 29 percent of its scientific positions vacant due to recruitment problems. The critical mass of scientists needed for multidisciplinary teams is simply not there at most of the centres. NARC is weak at all levels, from production to processing and packaging.

599. In order to build substantial linkage between the research institutions and extension systems, Technical Working Groups were established at regional and national level. These fora aim to provide opportunity to discuss on researchable problems and identify the area of research that reflects the problems of farmers. The idea is laudable, but so far the impact has not been visible yet. More strengthening of the mechanism is needed to ensure effectiveness of the linkage between research and extension.

600. **Decentralization and devolution**. Nepalese public extension system is led by the activities of the two departments under the Ministry of Agricultural Development- the Department of Agriculture and the Department of Livestock Services. Although both the departments have setup their parallel district offices and field offices (service centers) in all the 75 districts of the country, they have devolved the extension services to the district level pursuant to the decentralization policy of the Government of Nepal and Local Self Governance Act of 1999. However, this devolution has remained incomplete. The push for decentralization was not accompanied by the preparation of measures to implement the Act

by the local government. The decision to devolve the sector budget from central level to local level was poorly implemented. The local level (DDC) was responsible for planning and spending but the responsibility for the expenditures rested with the central level.

601. Both departments have retained their command in practice. So, the devolution has remained within the district level, not reaching the VDC level where the programme and activities are actually implemented.This is weakest link in Nepal's current decentralized extension service. The link between backstopping technical department and the District (DADO) has also been weakened. Often, local resources are not used for agriculture sector but for other purposes.

602. **Coverage**. In 2003, the Government of Nepal reorganized the MOAD with a view to right size it as part of the Governance Reform Programme (GRP) agreed with the Asian Development Bank. However, this reorganized structure further reduced extension coverage and access of the farmers to extension services. This coverage does not match with country's difficult terrain, physio-graphic situation, limited transport facilities and physical infrastructure.

603. **Outreach and inclusion.** Both the departments have been delivering services to farmers using commodity group approach since 1990. The number of groups in each district ranges from 100 to 400. Government statistics show 32,619 and 17,859 farmer groups under the DOA in 2013/14 and DLS in 2012/13 respectively[74]. In fact, there are statistics available at the district level. This coverage is about 18% of DOA and seven percent of DLS of the total farming households. Adoption of the group approach makes sense as it is more efficient and cost effective than the individual approach. However, the reality is that a large majority of farmers are still unreached. The most unreached farmers are the large mass of very poor, ethnic and religious minorities. Recent years have seen commercial and large farmers tended to remain in groups because of government subsidies and assistance being channelized these through farmer groups. While this could lead to increased control of government subsidies and assistance by these groups, there is no evidence to substantiate it. There are limited research and studies and monitoring by the departments to assess the distribution of subsidies and assistance. Likewise, the Departments have no proper statistics on the number of active, semi-active and defunct groups and the groups which have already been transformed into cooperatives as well. The departments have not devised programmes to graduate groups and categorize them based on the year of establishment. Statistics may be available at the district level but need to be aggregate at the regional or national level.

604. **Coordination and collaboration**. The review of Nepalese extension system shows several examples of progressive policy shift from dominance of public extension system to institutional pluralism with expanded roles and responsibilities to non-government, private and cooperative sectors as well, particularly after the implementation of the Agriculture Perspective Plan 1997 and Issuance of the Guidelines by the Ministry of Agriculture to Involve Private and Non-Government Organizations in 2002. Likewise, most of the externally assisted projects have promoted institutional pluralism with responsible roles to NGOs and private sector and limited monitoring roles to the DADOs and DLSOs. However, review shows that the public extension service has not been able to benefit effectively from this

[74] Agriculture Extension Directorate, Annual Programme and Progress Statistics Book, 2013/14 (2070/71 BS).

opportunity yet. It appears that they are yet to internalize the change situation, learn and adapt.

605. **Presence and delivery competence of public sector**. To operationalize Priority Productivity Package (PPP) programmes of the APP, the MOAD formulated "Implementation Guidelines on Pocket Package Strategy (PPS) for Agriculture Development 2055 (1998)" which provided a common framework for defining pocket areas, group formation and development, preparation of pocket profile, identification of priorities, programme formulation, monitoring, and review/evaluation. While the PPS is considered as a concrete mode of implementing APP and a the main way to disseminate core message of APP to farmers, review of PPS implementation showed coverage of less than 5 percent of the total cropped area of the country by 2004; this coverage increased to 12% by 2013/14 [75]. This also suggests that public extension services has been grossly inadequate from both quality and quantity dimensions.

606. **Human resources**. The field extension agents are loaded with non-extension functions such as collection of agricultural statistics and data and transportation of agricultural inputs such as seeds, fertilizers and pesticides and regulatory functions. There will be a need to identify appropriate balance between extension and non-extension functions. This is aggravated by the lack of service standards in agricultural extension service delivery and extension methods. The system is overwhelmingly dominated by norms for expenditures. Key indicators for measuring success of agriculture extension service at district and service centers have not been defined. Moreover, training marketing and agribusiness development have been neglected.

607. **Linkages with research**. The service suffers from weak linkages with national agricultural research systems. Part of the problem has emerged due to weak national research system, lack of resources, frequent changes in the institutional leadership and lack of effective mechanisms of research extension linkages. This too suffers from the lack of service standards and road map. Linkage at regional level has functioned to some extent depending on the role of the leadership; linkage at national level is that of hi-hello type.

608. **Linkages with education.** The research and extension system is poor with the agricultural university system. The three organizations (NARC for research, DOA/DLS for extension, and universities for education) do not seem to have benefited from cross-fertilization of the agricultural knowledge triangle. There are no statements and provisions in the Tribhuvan University Act 2049 and the University Grant Act 2050 which result into the research, extension and education linkages. TU Act has no provision of membership of NARC or MOAD in any committees formed under the Act. Nor it envisages consulting line ministries regarding the production of their products either in terms of quantity or quality (knowledge and skills requirements/needs assessment). Recently, the Agriculture and Forestry University Act 2067 established the AFU to conduct study, teaching and research in an integrated manner on the area of agriculture and forestry, and the AFU has requested the Ministry of Education for permission to carry out the extension activities. Further, the AFU senate also includes the secretaries of line ministries and the Executive Director of NARC as members.

[75] Dhakal 2004 quoted in APP Implementation Status Review, APPSP/MOAC, 2007, and Agriculture Extension Directorate, Annual Programme and Progress Statistics Book, 2013/14 (2070/71 BS).

A2.7 Competitiveness

609. Nepal has trade agreements including membership of World Trade Organization (WTO) and South Asia Free Trade Agreement (SAFTA), and has agreements with India and China, which are also major trade partners. The guiding policies are the Trade Policy 2015), The Procedures of Export Incentives 2013 and Nepal Trade Integration Strategy (2010). There are a number of issues constraining competitive performance including difficulty of doing business, infrastructure, governance, access to credit, and regulations (Table 55). **Most of the competitiveness indicators are ranked very low in international benchmarking**.

Table 55 Competitiveness indicators for Nepal

Indicator	Rank
Difficulty of doing business across borders	99 of 189 countries
Infrastructure index	126 of 144 countries
Ease of access to loan index	116 of 144 countries
Corruption perception index	128 of 144 countries
Governance effectiveness index	-0.83 (range -2.5 to 2.5)
Regulatory quality index	-0.85 (range -2.5 to 2.5)

Source: World Economic Forum 2016 , World Bank 2016 [76]

610. Nepal's agricultural import and export trade comprises about 17.5 % of total trade during 2012/13-2014/15, which includes items such as petroleum, construction materials, vehicles and equipment, consumer goods and others. Agricultural trade is dominated by export of lentils, tea, cardamom, fruit, ginger, and medicinal and aromatic plant products (MAPs), with import of fruit, cereals, vegetables, beans (mostly peas), dairy products, chicken/goats/buffaloes for meat, and raw materials for processing (oilseeds) and manufacturing (fibers for carpets, garments and textiles). There is good potential for import replacement in vegetables, fruit, beverages, dairy and meat. Export value of the top three high value crops namely cardamom, fruits and tea is only one-quarter of the value of cereal and dairy imports (Table 56).

611. There is considerable potential to increase value addition in Nepal, including: (i) improving quality, safety and labeling up to Codex Alimentarius standard; (ii) certification to standards for safety, quality, fair trade and organic branding; and (iii) processing and product development, for example, the vast majority of spices, pashmina, hides and skins; and MAPs are exported in raw form and most value addition is done in India and China.

Table 56 Import and Export of high value crops, cereals, MAPs and dairy (2012/13, 2013/14 and 2014/15)

	Exports (Rs. Million)			Imports (Rs. Million)			Surplus/Deficit (Rs. Million)		
	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15
Lentils	2,677.32	2,047.63	1,257.96	670.43	1,380.29	1,751.56	2,006.89	667.34	(493.60)
Tea	2,043.22	2,029.44	2,006.88	57.52	55.83	93.76	1,985.70	1,973.61	1,913.11
Cardamom	3,850.34	4,270.37	3,839.81	713.34	727.32	416.19	3,137.00	3,543.05	3,423.63

[76]Kaufmann, D., Kraay, A. and Mastruzzi, M (2009). "Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996-2008". *World Bank Policy Research Working Paper No. 4978.* World Bank, 2009

Fruit	33.14	4,161.03	2,850.40	6,374.31	12,180.58	10,544.69	(6,341.17)	(8,019.55)	(7,694.29)
Ginger	1,332.45	449.90	464.92	740.77	188.86	91.31	591.68	261.04	373.61
Vegetables	86.50	145.69	266.33	2,488.51	3,158.82	4,255.91	(2,402.01)	(3,013.13)	(3,989.57)
Coffee	45.48	52.40	99.30	31.73	34.82	56.46	13.74	17.58	42.85
Beans	7.83	2.31	0.61	3,397.07	4,377.56	4,802.42	(3,389.24)	(4,375.24)	(4,801.81)
Sub-total High Value Crops	10,076.28	13,158.78	10,786.23	14,473.68	22,104.08	22,012.30	(4,397.40)	(8,945.30)	(11,226.07)
Cereals	158.01	164.85	75.26	25,915.65	29,356.69	35,297.42	(25,757.64)	(29,191.84)	(35,222.16)
MAPs	1,274.37	1,602.19	1,626.12	0.02	751.15	612.45	1,274.36	851.04	1,013.68
Dairy products	177.03	142.38	233.50	972.00	1,910.69	2,096.30	(794.97)	(1,768.31)	(1,862.80)

Source: TEPC data base, and MOAD Year Books (2012/13, 2013/14 and 2014/15). Note: Figure in parenthesis are deficits.

A2.7.1 Agriculture Trade Issues

612. **Nepal-India trade treaty** provides *reciprocal duty free market access* to selected agriculture and primary products.Obviously, the open and porous border between two countries has created *de facto* free trade, through formal or informal channels[77], in agriculture products and also in the input market between Nepal and India. In addition, because of the difference in productivity due to difference in technology, scale of operation and the magnitude of government supports, Indian agriculture products outcompete some of the Nepalese products in the Nepalese domestic market. The major source for agriculture imports is India, and though positively contributing to price stability, it has displaced Nepalese cereal products in the market as evident from the consistently increasing share of imports of food items in the food consumption.

613. Despite low average tariff rates on imports and no direct distortion practices in export trades, **there are several problems in the existing tariff system**. At first, it has continuously encouraged cascading tariff system as a result of several rates and bands imposed depending upon the stages of production or the degree of fabrication. Such a tariff system discourages production and trading of high value added products that also could generate more employment opportunities. Such a tariff structure may discourage the development of forward and backward linkage industries that use domestic resources[78].

614. Due to lack of good farming and manufacturing practices, it has been difficult for Nepalese farm products to comply with international quality standards. As a result, **Nepalese products face non-tariff barriers in the form of sanitary and phyto-sanitary (SPS)**

[77] Karmacharya, Binod. A study on Cross-Border informal Trade between Nepal and India on Selected Agriculture Commodities. Nepal Council for Development Research (NECDER), Kathmandu, 2010

[78] Khanal, D. R. and Kanel, N. R. (2005) *Macroeconomic Policy, Shocks and Poverty Reduction in Nepal*, Kathmandu: Institute for Policy Research and Development.

and technical standards in the export markets.[79] In addition, Nepal lacks an adequate legal and institutional system for the certification of products.

615. **Although Nepal adopted a market determined exchange rate regime in late 1990s, it has maintained fixed exchange rate to Indian currency**. Given the difference in inflation rate in Nepal and India (the wholesale price index rose by 192.5 percent in Nepal compared to 120.1 percent in India during the period 2000/01 to 2014/15) and resulting over valuation of Nepalese currency vis-a-vis Indian currency[80], it has been argued that pegged exchange regime with India has resulted in erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets[81].

616. Another issue looming in the agri-business sector is **data gaps and anomalies**. Authentic database on existing agri-business establishments, their production levels, sales volume, investment patterns and employment generated by the enterprises is lacking. This discrepancy has serious implications, for example, in the export of products requiring a certificate of origin under the bilateral treaty agreement of 1996 and 2009. If statistics are not accurate, certification may be denied on the ground that the expected amount of total production has already been exported.

617. In terms of assuring **food security** through a self-reliant food economy, international trade has positively contributed to country's capacity to finance food imports through export earnings and at the same time, it has helped to stabilize food prices vis-à-vis Indian markets. It might have helped to avoid efficiency loss or direct costs involved in stabilizing domestic food market[82]. Therefore, one of the issues of agriculture trade is how to use trade policy instruments in securing food security through self-reliant food economy.

618. Ministry of Commerce and Supplies (MoCS), headed by the Minister, is at the centre of trade policy formulation, implementation and negotiation. But, there is non-existent or limited coordination with or participation of other sectoral ministries, in particular MoAD, in trade policy formulation and implementation.

619. In the formulation of Trade Policy 2015 and Industrial Policy 2011, **the participation of MoAD has been was limited**. . Trade Policy 2015 establishes Board of Trade which is represented by six government ministries including the MoAD in view of 16 out of 26 products identified for special focus and thrust areas are agriculture products. On the other hand, Industrial Policy 2011 constitutes Industrial Promotion Board under the Chair of the Industry Minister for implementing the policy. The Board is represented by nine ministries, but MoAD is excluded even though a large part of the manufacturing establishments are based on agro-products.

[79] ITC. Export Potential Assessment in Nepal. 2007.
[80] Ministry of Finance, Government of Nepal, Economic Survey (various issues) and Ministry of Finance, Government of India, Economic Survey (various issues)
[81] Nepal's inflation has been higher than India since the exchange rate was fixed at 1.60 in 1992, which affects the price competitiveness of Nepal's products on both sides of the border, for example the retail price of eggs and milk in Nepal is more than double the price in India.
[82] Pandey, Posh Raj. 2009. *Trade Policy as an Instrument to Ensure Food Security: A case of Nepal*. Paper for the Asia-Pacific Trade Economists' Conference on Trade-Led Growth in Times of Crisis, Bangkok, Thailand, November 2-3, 2009

620. **The salient feature of Trade policy promulgated in 2015 is that it has assigned a lead role to the private sector for export promotion, limiting the role of the state as a guide, facilitator and regulator**. Providing continuity to reduction of market distortions, deregulation and institutional development of previous trade policy, it concentrates on the "supply side" and its orientation is towards export "development" and not just "promotion". Further, it emphasizes to: implement the 9th WTO Ministerial Conference 2013 decisions (namely, trade facilitations, agricultural negotiations, cotton negotiations, and LDC's duty free and quota free market access); promote exports of goods with comparative and competitive advantage by protecting intellectual property rights, strengthening standard-testing laboratories, common facility and processing centers, and institutional capacity building; manage growing imports; and promote export-oriented service firms. It also identifies 16 agriculture products for export development. Other sectoral policies that affect agriculture trade such as Approach Paper to Three Year Plan 2016/17-2018/19, National Agriculture Policy 2004, Agri-Business Promotion Policy 2006, Industrial Policy 2011, and Foreign Investment Policy 2015 also stand for market-oriented and competitive agricultural production and export promotion. In other words, the trade regime of Nepal is liberal; there is no quantitative restriction and import licensing; number of tariff slabs is low; tariffs are at moderate level; current account balance of payments are fully convertible; export and import procedures are simplified; and reforms are underway for institutionalizing export incentives.

621. **Nepal is a signatory of some trade agreements**: Nepal-India trade treaty, MOU on Nepal – China FTA 2016, South Asia Free Trade Agreement (SAFTA), Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the WTO. As Nepal has provided very limited domestic supports and the bound rate of tariffs in WTO is about three times higher than applied tariffs, there are policy flexibilities in agriculture development.

622. Despite policy various initiatives, **the trade performance of Nepal in recent past has been miserable**. Though the rate of growth of exports has revived during 2005-08 period, the growth of imports has outpaced the growth of exports. In addition, export growth rates could not catch up with the GDP growth rates and the export/GDP ratio declined and coverage of imports by exports also fell. As a result, trade deficits increased to the tune of 32.0 percent of GDP during 2013/14-2015/16. Nepal experienced a structural change in its export and import structures during 1994/95 - 2015/15. The share of agriculture and food items in trade increased (to 17%) whereas the share of manufacturing goods declined (to 58%). The structural change has been more pronounced in export than in imports. Export performance in agriculture (12.3%/year) is better than overall export performance (8.9%/year). The growth rate of agriculture exports remained at double-digit level and surpassed overall export growth rates, but the import growth rates of agricultural products have been higher (13.5%/year) than their exports. The share of agriculture exports in agricultural gross domestic product (GDP) reached 3.06 percent in 2014/15 and the share of agricultural imports in gross domestic consumption was 6.48 per cent in the same year.

623. **Nepal exports agriculture goods in primary forms and without any substantial value addition**. Top ten agricultural export products at HS-6 digit level based on TYAE 2014/15 include big cardamom, non-alcoholic beverage (mixture of juices), areca nuts, lentils, black tea fermented, chewing tobacco (jarda, khaini, snuff, ghutka and likes), plants and part of plants, frozen orange juice, pasta and oilcake and other solid residues. Similarly,

the major destination markets are India, Bangladesh, Afghanistan, China, Thailand, Vietnam, USA, Malasiya, UAE, and EU. The export structure of agriculture products indicates that there is limited industrial forward and backward linkage with export sectors, including low utilization of local materials and inputs. Nepal is having comparative advantages in export markets in resource- and labor-intensive low technology agriculture products such as dried vegetables, coffee, tea, vegetable and roots, ginger, cardamom etc. However, for vegetable fat, , sugar and confectionery, the growth rate is negative and there is high risk of eroding comparative advantage in these products in future. On the other hand, for animal feed and molasses, the growth rate is positive. Looking at the global market structure, Nepal is competing with low/medium level income countries, such as Bangladesh, India, Pakistan, China, Vietnam and Thailand in the export markets.

624. Both amount of foreign investment and numbers of entities with foreign investment in agriculture sector are low. However, the last eight years have witnessed revival of foreign investment in agriculture sector, though the share of this sector in total FDI is minuscule (about 4.5%). The available information also shows that most of the foreign investors are engaged in production, basic processing and retailing rather than generating values in international upstream stages.

625. **The major binding competitiveness-related supply-side constraints** are inadequate infrastructure for efficient production and transportation of goods; lack of human capital endowed with education and skills to process exportables; limited access to credit due to conventional/conservative banking practices that rely more on collateral than on the feasibility of business ventures; limited use of technology in the production processes which impedes the prospects of what is known as “moving up the value-chain ladder”; and virtual absence of trade facilitation measures which causes delays in the shipment of goods. Being a landlocked country and inadequate domestic transport network, the cost of transit and transport is high. The tariff faced by Nepalese agriculture products is about 5 times higher than the tariffs for non-agriculture products. In addition to high tariffs in export markets, human, health, environment and technical standards and requirements for agricultural products have become more frequent and stringent in export markets. Nepal-India trade treaty which provides *reciprocal duty free market access* on selected agriculture and primary products has resulted in displacement of agricultural products in domestic market as evident from the increasing trend of the share of imports of food items in the food consumption.

626. Despite low average tariff rates on imports and no direct distortion practices in export trades, the existing tariff system provides negative protection in some of the agriculture products since there is no sufficient domestic support in agriculture to counteract distortion of cascading tariff structure. It has also discouraged forward and backward linkage industries that use domestic resources. Given the differences in inflation rates in Nepal and India and resulting over-valuation of Nepalese currency vis-a-vis Indian currency, it has been argued that pegged exchange regime with India has resulted into erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets.

627. Nepal faces severe supply-side constraints on all major fronts, which means that it would not be in a position to fully utilize whatever limited market acess opporyunity is granted under bilateral, regional and multilateral trading regimes if supply-side bottlenecks are not addressed. In order to remedy this persistent problem of transit, **the transit treaty**

with India needs to be reviewed with a view to reduce cost and improve efficiency. In addition, it needs to be supported by a regional transit arrangement within South Asia, and with China. A key priority in Nepal's effort to expand agriculture exports should be to improve the quality of its products by developing its standards in harmony with the standards developed by the international standards bodies. Nepal may conclude mutual recognition agreement at the bilateral level, in particular with India and China. The Nepal-India trade agreement also needs to be renegotiated to exclude at least major agriculture products such as paddy, wheat, maize, millet, oilseeds and their products from duty free market lists. Similarly, Nepal needs to review in a step by step manner the pegged exchange rate system with India.

A2.8 Commercialization and Agribusiness

628. Commercialization of the agriculture sector is a theme in all the major agricultural policies, and also in the Approach Paper to 14th Plan 2016/17 - 2018/19, White Paper 2015, and Envisioning Nepal 2030. The MOAD*Agri-Business Promotion Policy 2006* highlights diversification, service delivery and private sector involvement to transform from subsistence to commercial farming. Specific measures like public-private partnership in services delivery, and in infrastructure for post-harvest, marketing and processing have been successful, and could be replicated with further investment.

629. Enterprises registered under the *Companies Act* pay corporate tax, and their employees pay income tax, resulting into a disincentive for full commercial development and rural employment generation. Companies are required to comply with various legislations including accounting, employment and contracts, while cooperative responsibility is limited.

630. There are also a number of issues in the commercial agricultural environment, on which government has not acted including for example: (i) lack of decision whether to promulgate the draft Contract Farming Act, or to improve regulation involving land, cooperatives and other aspects so that the existing Contracts Act (2000) is workable for contract farming; and (ii) price fixing and the subsidization of the Dairy Development Corporation which creates unfair advantage over private dairy and cheese manufacturers.

631. There is insufficient institutional capacity in MOAD to deliver the necessary services and support for commercial skills transfer, post-harvest and value chain development which is essential for commercialization. For these policy aims, partnership with private sector and orientation of research institutions would be appropriate, together with development of competitive funding of research and extension services.

632. Tax policy does not seem to be biased against farmers and agro-enterprises; however agribusiness entrepreneurs often complain that they lose competitiveness due to duties and taxes levied on agricultural technology inputs, equipment and machinery for production and processing.

633. Risk is inherent to any business and even more in the case of farming and agribusiness. Investment in agribusiness is often constrained by low returns (as compared to other sectors), high risk, and long-lags. In Nepal, there are few, if any, risk reduction mechanisms for the agriculture sector.

634. Nepali entrepreneurs' needs from the public sector include: (a) better maintained roads and a larger grid of agricultural roads; (b) reliable supplies of electricity; and (c) appropriate research. The gross deficiencies in each of these areas explain much of the slow growth of agribusiness in the past. Significant policy changes are needed to foster agribusiness development, including a specific commitment to the industry, transparent and stable tax structures, transparent rules and regulations, and a commitment to improving quality through enhanced grades and standards and a supporting system of implementation of good practices, such as Good Agricultural Practices (GAP), good manufacturing practices (GMP), good hygiene and handling practices (GHHP), and good veterinary practices (GVP).

635. The agribusiness sector provides opportunities for women farmers to achieve some degree of economic independence. Agribusiness sectors in which women dominate include sericulture, dryginger (*sutho*) processing, cardamom drying, fruit processing, cut flowers, and saffron, and tea and coffee. The active participation of farmers' associations and NGOs is very crucial in the development of agribusiness. Besides, policy reform is essential toward establishing an environment conducive to private sector investment in expanded market support services and infrastructure.

A2.8.1 Value Chain Development

636. A review[83] of Agriculture Value Chains was undertaken to support formulation of the ADS. The review included examination of 35 Value Chain studies, field visits to meet stakeholders, interviews with key informants and participation in relevant ADS assessment workshops. The main findings of the review are:

Key Issues - Value Chain studies:

a. A myriad of common bottlenecks inhibit development of almost all of the Value Chains examined across all three steps of the Value Chain – production, marketing and the 'bit in the middle' (that links production with markets).
b. Major areas that require attention include market information, quality inputs, credit, production and harvesting technology, regulation and certification, infrastructure, research, extension services and marketing skills.
c. There is a dearth of information linking implementation of the Value Chain methodology to actual results achieved.
d. Most recommendations in the studies are vague and general in nature and are not implementation friendly.
e. There seems to be a pronounced bias for studying and supporting a few favoured products or commodities, namely, Tea, Cardamom and Ginger.
f. Most studies and initiatives have a bias towards production. Less attention is paid to improving quality and marketing issues.
g. There is a pronounced focus on working with farmers to "push" products than on working with traders or businesses to "pull" products into markets.
h. There seems to be an inordinate amount of faith placed in contract farming.

Key Issues – Stakeholder Consultations

637. A field assessment covering the Eastern Development Region validated most of the issues discussed in the Value Chain studies. Additional issues emerging from the field visits are:

[83] The detailed findings are presented in the Consultant Report on Value Chains.

a. There is a pronounced "recipient fatigue" among targeted beneficiaries and intermediaries from endless discussions and analyses. Farmers and entrepreneurs are keen to see visible results and are tired of workshops, meetings and value chain studies.
b. Donors and supporters 'cherry pick' areas of support. A "whole chain" approach required for Value Chain development is largely missing in most of the cases.
c. Most analyses and initiatives see support for Cooperatives as an important strategy for increasing farmer bargaining power. There are good examples of cooperatives integrating into agri-business value chains (for example, in Orthodox Tea, Dairy). Cooperative governance is an issue that requires more attention.
d. Organics is an increasingly popular theme. However, all elements required for this to work effectively are not yet in place. A cluster approach is required for organics to be successful.
e. The concept of regional specialisation is taking hold through ideas such as One Village One Product (OVOP) and district level agriculture planning processes. This can lead to economies of scale and provide a platform for focused chain upgrading support. However, availability of resources is a big challenge.
f. The Indian market represents a big opportunity as well as daunting challenges. Bilateral trade issues (SPS, standards) need to be settled to ensure continuing market access and predictability of India's actions. There are also major concerns regarding the subsidies in Indian agriculture which render Nepali agro products uncompetitive.
g. Bangladesh represents another huge potential opportunity for Nepali farmers and producers. Macro-level trade and transit (via India) issues are a matter of concern and hinder market access.
h. There are reports of changes in cropping patterns (for example, Ginger and Cardamom cultivation moving to higher altitudes) and it is claimed this is due to climate change effects. This issue needs detailed examination to inform smallholder mitigation and adaptation strategies.
i. Commercial farmers and entrepreneurs face difficulty in accessing credit. There is a clear need to think beyond micro-credit when addressing needs of commercial farmers and agribusinesses
j. There are several encouraging instances of new investments in agribusinesses (for example, in Ginger and Orthodox tea processing). There is demand for technical assistance packages to nurture and protect these investments.

A2.9 Infrastructure

638. There has been considerable progress in three types of infrastructure (roads, energy, and communication) over the APP period. Rural roads and energy targets of the APP have been largely achieved.

639. With the rapid growth in the rural roads sector, there are a number of key issues in the **design and implementation of rural roads** program:

a. There is little coordination between the Ministry of Agriculture and the Department of Local Infrastructure and Agricultural Roads (DOLIDAR) under the Ministry of Federal Affair and Local Development in designing priorities.
b. The road network, despite good level of growth, is not sustainable. Due to earthen surface and absence of bridges, it is not usable round the year.
c. Rural transport services are expensive due to limited competition among the vehicle owners.
d. The construction process is predominantly machine (bulldozers or excavators) based where the engineering inputs are often very low and of poor quality.
e. As a result of the construction approach used, the maintenance costs are high due to absence of drainage systems, retaining structures and haphazard soil disposal practices.

f. There is a high degree of complexities associated with rural road construction which means that inefficiencies disallow necessary investments in development of quality network.

640. Rural infrastructure delivery in Nepal, in general, has over the years been highly influenced by national and local politics and issues associated with governance. This has had a very detrimental effect in the quantity and quality of delivery. The following factors have broadly contributed to the lack of performance in achieving infrastructure targets for a range of infrastructures, including rural roads, power and communications as a whole:

641. **Poor investment environment**, particularly for the power sector, has meant lack of mobilization of the high amount of investment that needs to go into developing hydropower schemes. Poor investment environment has resulted from policies, in which the licenses holders are not compelled to invest, unstable political situation and political pressure to potential investors to allocate funds in the areas (such as schools for the communities) outside the scope of the investors.

642. **High fiduciary risks** have significantly raised the cost of infrastructure development making the investments for quality infrastructure unattractive. This has affected the delivery of all weather (black topped) road sections, investment for power production as well as making the mobile communications affordable to the rural poor.

643. **Limited human resources** to undertake large scale infrastructure development schemes have also impeded the growth of the infrastructure sector. Nepal has, over the years, seen mass migration of both the skilled and unskilled workforce to developed countries. Many engineers, essential resources to implement the schemes, and the youth force which provide the unskilled labour requirements, have left the country over the past ten years due to low growth in the infrastructure sectors. In the absence of required quantity and quality of human resources, the infrastructure development has become more expensive as well as limited in scope.

644. **The infrastructure developed** lacks close linkages with agriculture sector. Most of the investments made on infrastructure are largely based on the population size. The areas with potential agricultural development are still ignored in the planning process and more so in the allocation of the annual budget.

645. **Poor implementation and monitoring** of the infrastructure programmes are negating the impact and quality of the infrastructure built. Policies and guidelines are less followed, and the responsible agencies are not properly monitoring the performance of the infrastructure outputs against agreed policy outcome indicators, if any.

646. In order to develop a required level of infrastructure base for the growth of the agriculture sector, it is essential that the government prepares a investment friendly environment for the private sector and for international investors to invest, particularly in the power and telecommunications infrastructures.

647. The rural road sector suffers from increased fiduciary risks at the local (i.e. DDC and VDC) level where the guidelines for development of rural roads in a systematic manner following agreed District Transport Master Plan and Rural Roads standards are less followed.

A2.10 Finance, Insurance, Taxes

A2.10.1 Credit

648. The need for viable rural financial services remains a constraint to rural commercial development. ADBN has moved away from sole agricultural financing since it was upgraded to 'A Class Commercial Bank' in FY 2005/06, but commercial banks had not filled the gap especially till 2010 {(Figure 23 (a) & (b)}. In this sense, credit disbursement has not reached APP targets. The relevant policy is government's Financial Sector Reform Program (2009), implemented in coordination with the International Monetary Fund (IMF), World Bank and ADB. The ADB-financed Rural Finance Sector Development Cluster Program (2006-12)[84] implemented by the NRB is developing an enabling environment for the rural finance sector through policy, legal, regulatory, and institutional reforms. The program helped reinstate ADBN as a strong financial institution focused on agricultural and rural development, and improved the delivery mechanism for rural finance. Thus the Monetary Policy 2010/11 required them to increase the share of productive sector credit (PSC) from 6% to 12% by 2012/13. Similarly, the Monetary Policy 2011/12 required the CBs to further increase the share of PSC to 20% by 2013/14. Subsequently, the Monetary Policy 20113/14 required that the share of agricultural and energy sector credit be 12% of the total credit and the Monetary Policy 2016/17 further increased it to 15%. In addition, the Monetary Policies since 2014/15 have required that the credit to PSC by the development banks and finance companies be 15% and 10%, respectively. The institutional development of the major rural finance institutions is expected to result in a credit environment with improved supervision and regulation. The institutions are moving toward eventual privatization.[85]

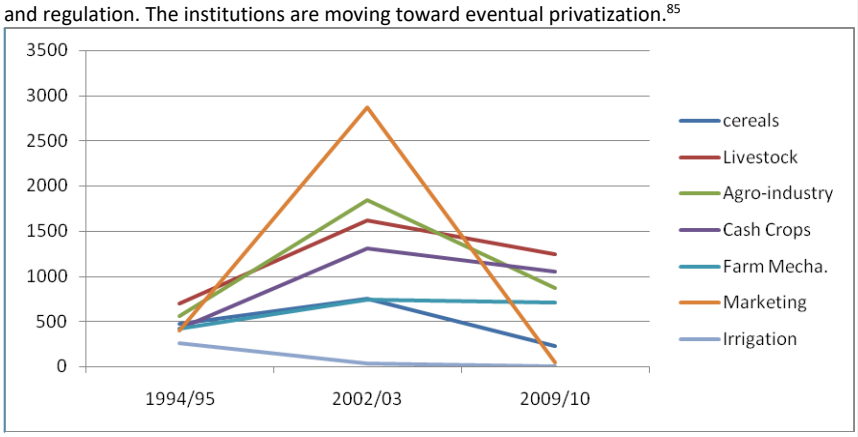


Figure 23: ADBN: Top 7 purposes of agricultural loans (Rs Millions)
Source: Agriculture Development Bank Nepal, 2011

Commented [YB1]: We suggest to delete the above figure in view of (a) change in credit classifications lines, (b) the credit from all BFIs' to agriculture is several fold larger than by ADB/N alone, and (c) Alternative figures are provided below..

[84] Sub-program 2, Project Number: 36169-02 was approved May 2010.
[85] ADB (2009). "Country Assistance Program Evaluation: Nepal—Delivering Assistance in a Challenging Environment". Manila. 2009

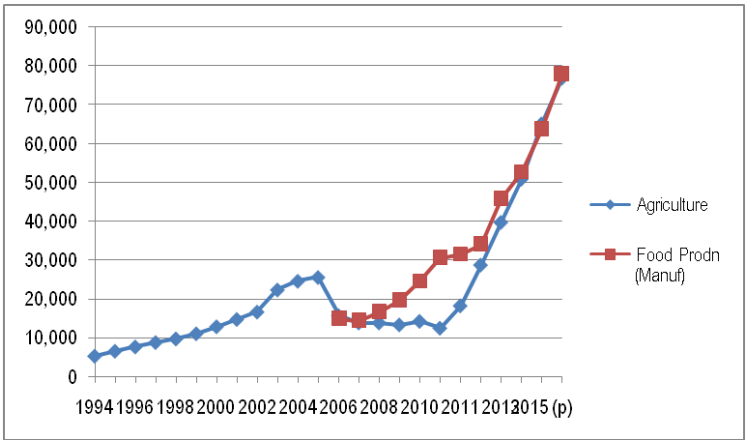


Figure 23 (a): Banking and Financial Institutions' Credit to Agriculture and Food Manufacturing during 1994-2015 (Mn Rs)
Source: Nepal Rastra Bank
Note: Data for 1994-2005 refer to ADB/N, data for 2006- 2010 refer to commercial banks, and all BFI's thereafter

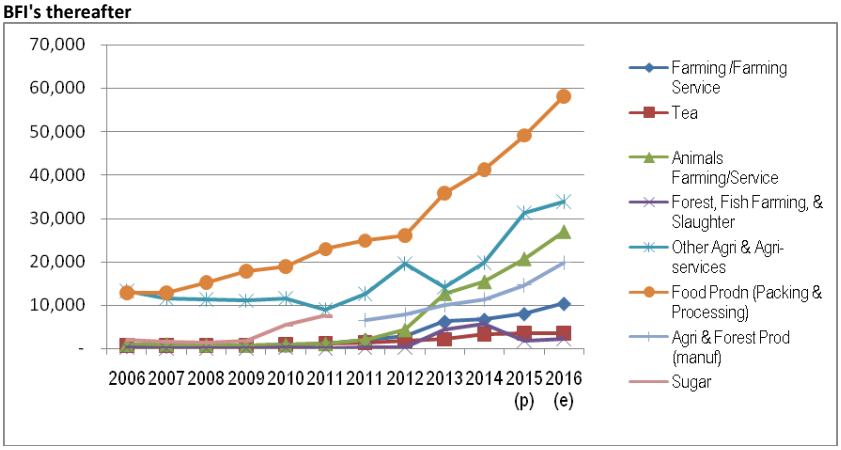


Figure 23 (b): Banking and Financial Institutions' Credit to 5-Agricultural Subsectors and 2-Food Manufacturing Subsectors during 2005-16 (Mn Rs)
Source: Nepal Rastra Bank
Note: Data for 2006-10 refer to Commercial banks, and 2011-16 refer to all BFIs

A2.10.2 Insurance

649. Nepal faces a series of key institutional, financial, technical, and operational challenges in developing crop and livestock insurance products and services which are suited to the needs of the country's small and marginal farmers, and in scaling-up the demand for and supply of crop and livestock insurance The Government/Insurance Board that have has ut in place legislative arrangements on agricultural insurance include the Agriculture and Fishery Insurance *Abhilekh* 2070 BS (2012), Crop and Livestock Insurance Premium Grant

Availing Directive 2069 BS (2013) (amendment 2016), and the Budget Speech 2016/17. The Budget Speech subsidizes up to 75 percent of total premium on insurance of investment in agriculture and livestock, and plans to move to the production base agriculture insurance program, and expanded the insurance programme to reduce the risk of crop production and storage.

Institutional challenges include the following:

a) The supply of agricultural livestock insurance products and demand for insurance are very low. Commercial insurers are not offering such products. Credit Guarantee Corporation is offering such facilities but after more than 30 years of operation, it is still in an infant situation. In the case of livestock, current uptake amounts to less than 20,000 heads of cattle or buffalo each year representing less than 0.3 percent of the national herd.
b) In the agricultural insurance legislation, there is a lack of clarity over the legal status of the guarantee protection cum insurance products which are being implemented by a range of public-sector organizations, the cooperatives, and MFIs.
c) Existing Insurance Act does not recognize, and thus does not supervise, the insurance products and services offered by the cooperatives and MFIs to Nepali small and marginal farmers. This in turn acts as a major barrier to collaboration between cooperatives/MFIs and private commercial insurers in their efforts to identify ways of:
    - Strengthening and standardizing agricultural insurance product design and rating so that these conform to the technical and legal requirements of the insurance industry.
    - Developing an integrated risk financing strategy for crops and livestock whereby the cooperatives might operate as the primary insurer, the insurance companies might provide excess of loss insurance and government might also participate as a catastrophe reinsurer.
    - Collaborating in the marketing of agricultural insurance products, thereby reducing the costs to both parties and other operational areas that are purely technical side underwriting, policy wordings, delivery channels, claim process, claim settlement norms.

Institutional challenges include the following:

a) Low capital base of commercial insurers is a serious obstacle for developing agricultural and livestock insurance. Commercial insurers are also concerned about their ability to access international agricultural reinsurance capacity.
b) Cooperative agricultural insurers have limited financial capacity and none of their programs is currently reinsured. The cooperative and MFI insurers usually have limited financial reserves and none of the agricultural credit-guarantee or insurance programs is protected by reinsurance. The lack of access to formal risk transfer and reinsurance mechanisms leaves the individual cooperative or MFI insurers very exposed to catastrophic losses. Many of these programs have failed because of their inability to put in place a proper catastrophe reinsurance program.

Technical challenges include the following:

a) Insurers have had little or no exposure to international practice and procedure in agricultural and livestock insurance. They lack knowledge and awareness in design, rating, method of processing, identifying risk, identifying needs, coverage of risks and their modalities and benefit packages, claim handling, and service providing. Cooperatives and MFIs also have very limited experience with agricultural insurance.
b) The range of crop and livestock insurance products currently available through the cooperative and microfinance sectors is narrow and needs to be strengthened and brought into line with international standards. There is also a need to develop new crop

and livestock insurance products which are tailored to the needs of Nepali farmers in each of the main agro-climatic regions.

c) Lack of insurance data and proper information is another set of issues in this sector. Data and information are critical to the design and rating of any crop and livestock insurance program in Nepal. Availability of quality, long term time series data on crop production and yield is a challenge to be faced in developing adapted crop insurance products. For livestock, the regional mortality statistics are of limited use for the design and rating of livestock insurance policies.

Operational challenges include the following:

a) Commercial insurers have low level of operating branches in rural areas. The players have regional branch offices in the major cities, but few have retail sales outlets in individual districts and villages. Commercial insurers do not have a rural distribution network through which to market crop and livestock insurance products and services to Nepal's predominantly small farmers.

b) High administration costs of agricultural insurance for small farmers.

A2.10.3 Taxes

650. The trends in revenue and expenditure during the APP period show that government expenditure increased to 31.2 percent of GDP in FY 2015/16, while government revenue increased to 20.5 percent of GDP during the same period resulting into budget deficit of 7.6 percent of GDP. The share of foreign grant was 3.0 percent of GDP, while combined loan (foreign and internal) constituted 6.5 percent of GDP in FY 2015/16.

651. The land revenue, one of the main revenue sources during 70s, was collected by the Central Government till FY 2001/02 and, thereafter, local bodies were authorized to mobilize land revenue as of LSGA 1999. The available data reveal that contribution of land tax to total revenue declined drastically from 11.8 percent in FY 1974/75 to a negligible level of 0.01 percent in FY 2000/01. The conspicuous decline in the share of land tax is attributed to the lack of voluntary compliance, for land tax is paid and arrears cleared during the sale and purchase of land only. There is no stringent regulation applicable to deal with delinquency in payment of land tax.

652. The Village Development Committees (VDCs) have extremely limited capacity for revenue mobilization. Of total resource mobilization, the share of internal income is inordinately low confined to 16 percent of total revenue, while external income comprising transfer grants from central government and District Development Committees (DDCs) and other sources constitutes as high as 84 percent as of FY 2005/06. By 2013/14, the VDC's share of internal sources and revenues declined to 3.2%. This is indicative of alarmingly increasing dependency of VDCs on Central Government for resource mobilization, which is attributed to inability of VDCs to mobilize internal revenues as envisaged in the LSGA 1999. The revenue mobilization through internal sources in DDCs is confined to 6.9 percent of total revenue, while contribution of central government is 85.0 percent and that of income obtained through revenue sharing is 8.1 percent during FY 2014/15. The Municipalities are relatively rich and internal revenue is as high as 70 percent of total revenue, while grants from Central Government and Town Development Fund (TDF) equal to 25 percent and resource mobilization from miscellaneous items including loan comprise 5 percent of total revenue as of FY 2005/06. Subsequently, the municipalities' internal source and revenue sharing is 45.2% and central government grant was 54.8% as of 2014/15. Although status of

resource mobilization is comparatively better in Municipalities as compared to VDCs and DDCs, Municipalities suffer from inadequate resources to match growing development activities within the area.

653. There is no tax on income from agriculture. In addition, a number of agricultural commodities are exempted from VAT and so is the case with Customs Duties and Excise Duties. The local bodies are unable to effectively implement prevailing Acts and Regulations and collect revenues from all sources as envisaged in the LSGA 1999 primarily due to administrative inefficiency and indifferent attitude of local political leaders that they might get defeated during the election if all revenue assignments are implemented at the local levels. The tax effort ratio (revenue/GDP) has gradually increased from 9.2 percent in FY 1990/91 to 20.5 percent in FY 2014/15 and it was encouraging even during the APP period from 1995 to FY 2014/14 . However, the performance is relatively low compared to other SAARC countries.

654. All major policy documents including APP (1995), National Agriculture Policy (2004), Approach Paper to 14th Plan (2016/17- 2018/19), Budget Speech for FY 2016/17, and the programs and proposals for agriculture development visualized by major political parties in their election manifestos clearly refer to their passive role on taxing agriculture. Therefore, taxing agriculture in Nepal is a sensitive issue that requires developing consensus among major political forces to drive for modernization and commercialization of agriculture especially high value crops (cash crops) and promoting agribusiness. This will provide an opportunity for mobilizing revenue from agriculture sector. With due consideration to this fact Federation of Nepalese Chambers of Commerce and Industries (FNCCI), apex body of private sector, has given due emphasis on promoting agro-enterprise and developing agribusiness (FNCCI, 2011) and suggestions of FNNCI for the government budget for 2016/17 .

655. The major political parties are campaigning for introducing scientific land reforms system by lowering down land ceiling and thereby distributing surplus land to landless people and eliminating absolute poverty (Manifesto of Political Parties, 2006 and 2012). However, there is no certainty whether small size of holdings would help raising production as well productivity of agriculture sector comprising both food and cash crops.

656. Agricultural taxation in Nepal should be formulated taking into account India's agricultural policy to provide subsidies on: (a) fertilizer, (b) interest on loan to small farmers, (c) use of irrigation and electricity facilities, (d) petroleum products and (e) agricultural machinery, and examine its impact on Nepalese agriculture.

A2.11Subsidies

657. Subsidies are ingrained in the being of the average Nepali farmer. Of all the suggestions and recommendations made to the irrigation team during fieldwork, requests for subsidies were the most common, followed by requests for protection from unfair competition from subsidized Indian production. At the same time, in most irrigation systems observed in all regions of Nepal, there was a strong indication of a need for government support, ie, that they could manage their systems but would first need major government input. There is, of course, a risk that despite substantial investment in upgrading, the performance of the Water User Associations (WUA) would not greatly improve – ie, that

despite claims of self-reliance following upgrading, in practice WUAs will be tempted to continue to defer maintenance.

658. One of the key tasks of the ADS in the irrigation sector is thus seen as being to attempt to design a program that will assist WUAs become more effective and autonomous over the 20-year ADS period. It is envisaged that within the period, the average WUA will be collecting sufficient service fees to fully pay for regular and exceptional maintenance, and will be managing water allocation in its system effectively.

659. Government has or is using subsidization as a strategy to address issues including: (i) supply of organic and chemical fertilizer; (ii) technology, seeds, poultry chicks and hatchery, fisheries, irrigation, equipment and tools; and (iii) agricultural production collection centre, warehouses, processing centre, cold storage and transport to remote areas. The 14th Plan has proposed capital subsidy on livestock (cattle, goat, poultry and piggery) for the earthquake affected households. The Budget Speech 2016/17 has increased the interest subsidy to 5% for credit on agriculture and livestock. However, use of subsidy has not been consistent, nor has it always been effective in delivering policy goals, nor clear benefits to the agriculture sector and farmers.

660. India's subsidization of agriculture is often mentioned as limiting Nepalese agriculture's competitiveness, but this mostly applies to profitability in lower value crops especially cereals, rather than higher value agricultural industries such as vegetables, cardamom, and tea which have other competitive advantages. India's subsidies are used to justify subsidy for fertilizer in Nepal. The current Nepal fertilizer subsidy has not resulted in adequate supply and distribution of fertilizer to the agriculture sector and the strategy and implementation should be revised to include the role of private sector. Consideration will need to be given to the subsidy level, its affordability, and the price impact on supply and demand.

661. Subsidy on agricultural technology inputs for least developed countries is not subject to restriction under WTO and regional trade agreements, so is not an issue for trade. Technology and inputs adoption and use have responded to subsidy, for example (i) subsidy for establishment of STW irrigation, and (ii) subsidized seeds, micro-irrigation and greenhouse costs for farmers to diversify into high value crops. However, other non-subsidy approaches have been successful, for example, the livestock credit scheme which has assisted many women into goat farming as a means of generating capital. Affordable and accessible financial credit is equally applicable as a means to achieve adoption of other technologies and diversification. Achieving goals of rural credit policy may reduce justification for subsidy, except as a targeted means for inclusive development of the very poor and disadvantaged groups.

A2.12Land Use Management

A2.12.1 Land Use Planning

662. Nepal did not have a planning and zoning legislation with the consequence that land can be used for any purpose without limitation. In 2004 the Lands Act was amended to provide for the formulation of a land use classification system and the consequential

prohibition to change land uses without a special permit[86]. The land use classification was to have been declared by the GON on the basis of a policy to be formulated by the Land Use Council[87] and to be implemented by the MLRM. Government of Nepal approved Land use policy in 2012, which had laid priority to protect the arable land for food security. The Land Use Policy 2072 BS (2015) is an update to its predecessors for addressing the new issues like: Constitutional basis Article 51 (e) agriculture and land reform; land uses areas classification principles; national need on balancing environment, planned development and growth; international commitments on sustainable development goals; directives and recommendations of the Cabinet, Commission, and Parliamentary Agri and Water Resources Committee; and MLRM's long term road map. In the absence of a land use classification system, there is a widely reported increase of instances where agricultural land is transformed to residential use (the so-called land plotting and land grabbing practices) reducing thereby the quantum of available productive agricultural lands as well as creating unplanned urban enclaves in rural areas.

A2.12.2 Land Ceilings

663. The Lands Act (amendment 2004) advocates a social justice approach to land holdings rather than an economic profitability one and does so by regulating the transfer of lands from the large landowners, i.e., those who hold land in excess of the permitted ceiling (see Table 57), to the landless ones through the stipulation of land holding ceilings which inevitably leads to smaller and dispersed land holdings. In practice, the land reform designed by the Lands Act, and in particular its fifth amendment, which further reduced land holdings ceilings, has only been partially implemented as ways were found to circumvent the Act imposed land ceilings. Reportedly, there are still large landholdings in place, where landless tenants are employed as laborers in various forms of tenancy.

Table 57 Land Owning and Tilling Ceilings

	Land ownership ceiling	Additional land for residential premises	Land Tilling Ceiling
Terai	10 Bigaha*	1 Bigaha	4 Bigaha
Kathmandu Valley	25 Ropani**	5 Ropani	10 Ropani
All hilly regions except Kathmandu Valley	70 Ropani	5 Ropani	20 Ropani

Notes:

* 1 Bigaha = 6,772.63 m²

** 1 Ropani = 508.72 m². There are 13.31 Ropani in a Bigaha.

664. It should be noted that pursuant to Article 12 of the Lands Act (amendment) under certain conditions agro-businesses and cooperatives may be exempt from the land holdings ceiling[88]. Furthermore, in order to encourage consolidation of dispersed lands the 2010-2011

[86]Lands Act, Art. 51E

[87]Lands Act, Art. 51F. The Lands Use Council is composed of the Vice-Chairperson, NPC as Chairperson and have as its members the Secretary, Ministry of Defense, the Secretary, Ministry of Forests and Soil Conservation, the Secretary, Ministry of Agriculture and Cooperatives, the Secretary, Ministry of Physical Planning and Works; 3 persons nominated by the GON from amongst the land-use related experts and have the Secretary, Ministry of Land Reforms and Management as Member/Secretary

[88]Lands Act, Art. 12. The exemption is provided by order of the GON for the specific enterprise or cooperative (as well as for certain other activities/entities), for a specified activity and it details the size of land that may be held by the enterprise or cooperative. The exemption remains in force as long as the activity is undertaken.

budgetary laws provide for a reduction in land registration fees for exchange of lands for consolidation of lands used for agricultural purposes, for the purchase of land for growing tea, cardamom and fruits and for cooperatives engaged in farming who register their lands in the name of an industry[89]. The Budgetary law 2016/17 sets out to complete land use maps in three year, and the keeping land barren as punishable.

665. The traditional and statutory Partitioning (inheritance) Rules[90] call for the transfer of property to spouses and children without having the option to transfer the property to selected heirs. Consequently, the size of land holdings are ever decreasing as the land passes down the generations, adding to the difficulty of making a living off the land. Especially in those cases where the land is the only property of the deceased, there are also no practical options of exchanges between land and other assets to preserve.

666. The land holding ceiling imposed by the Lands Act as well as the Rules of Partitioning (see previous paragraph) reduce the size of the land ownership more and more making it more difficult to make a living off the land unless one can drastically improve the productivity. One could conceive two possible options to address the productivity per unit and per person while retaining small landholdings, either by the formation of land sharing cooperatives or by contract farming arrangements[91].

667. The Lands Act provided certain tenancy protection to those tenants that tilled land owned by others prior to 1964. Such rights were, however, no longer attainable after 1964. However, the landless farm laborers are at present perhaps worse off than before the enactment of the Lands Act as in anticipation of possible reinstatement of protected tenancy rights landowners prefer to leave their land untilled than to create tenancy rights for their laborers.

A2.12.3 Farm Size

668. Farm size distribution has implications for the strategic approach to agriculture sector development. A simple way to classify rural population is to consider three groups: (i) small commercial farmers; (ii) subsistence farmers; and (iii) landless or near landless. We can define **small commercial farmers** as those with holdings of 1.0 to 5.0 hectare, selling more than 30 percent of their output, ready to emphasize increasing their farm incomes and therefore ready for high intensity, high input agriculture. Mostly they are not subsistence farmers. They concentrate on farming, have some capital, are a good risk for lenders, and are willing to take risks to increase their incomes. This set of farmers comprises 20 percent of rural families[92], farming 50 percent of the land and presumably a somewhat higher proportion of output, which indicate slight decreases from 2001/02 to 2011/12. If we add the 0.3 percent of families with more than five hectares of land and commanding 3.3 percent of the land, then we have a total of 53 percent of the land. That comprises approximately 745,000 families for the research/extension system to concentrate on small commercial production. It is from these 745,000 small commercial farmers that the engine

[89]Fiscal Act 2068 (2010-2011), Annex IV.
[90] Muluki Ain (General Law), Chapter 13
[91] See discussion on contract farming in paragraphs 79-82.
[92]This is based on Agricultural Census figures for land distribution in 2011/12. More recent comprehensive data are not available. However, the main arguments should be robust to slight changes in the distribution.

of growth of the agriculture sector comes, driving rural non-farm employment, food supplies, and national income.

Table 58 Landholdings Distribution 2001/02 and 2011/12

	2001/02						2011/12					
	Holding			Area of Holding			Holding			Area of Holding		
Size of holding	Number ('000)	Per cent	Cumulative percent	Area ('000 ha)	Per cent	Cumulative percent	Number ('000)	Per cent	Cumulative percent	Area ('000 ha)	Per cent	Cumulative percent
less than 0.5 ha	1,578.9	47.3	47.3	390.2	14.7	14.7	1,987.0	53.5	53.5	485.0	19.2	19.2
0.5 ha and under 1 ha	915.7	27.4	74.7	641.7	24.2	38.9	984.0	26.5	80.0	695.1	27.6	46.8
1 ha and under 5 ha	817.4	24.5	99.2	1,428.2	53.8	92.7	732.7	19.7	99.7	1,258.1	49.9	96.7
5 ha and over	25.4	0.8	100.0	194	7.3%	100.0	11.8	0.3	100.0	84.4	3.3	100.0
Total	3,337.4	100.0		2,654.1	100.0		3,715.6	100.0		2,522.5	100.0	

Source: TA Team's calculations based on CBS NSCA 2001/02 & NSCA 2011/12

669. The second category the **subsistence farmer** commanding from 0.5 to 1.0 hectares in size. They comprise 27 percent of rural families (roughly the same in numbers as the small commercial farmer. They farm little over one– quarter as much land – 28 percent of the total. Some keep enough livestock to be small commercial farmers. But as a group they are mostly subsistence producers with inadequate land for survival as purely subsistence farmers. They must find substantial rural non-farm employment to survive. They are more risk averse than farmers with more than one hectare of land and the higher incomes that go with that. They are very short of capital and need some kind of loans but will be seen as risky to all lenders, and they spend considerable time in non-farm employment and in search for such employment. That reduces the quality of their crop and animal husbandry on average.

670. The third category is comprised of the **landless and near landless**. They comprise nearly half of the rural population, 2.1 million families in number but command only 19 percent of the land. Of these, landless are six percent . Very little can be done to raise the incomes of this group through increased agricultural productivity. Of course a few at the upper end of the range will be able to prosper in horticulture – but with great increase in risk in that they will have to put essentially all their land into horticulture. The contribution of ADS to the landless and most of 0.1 to 0.5 hectare holdings will be largely through the indirect effects of rapid growth in the rural non-farm sector stimulated by income growth of the small commercial farmer.

671. Those farmers with half to one hectare of land could achieve a substantial increase in family income from improved farming practices. However, this group, compared to the small commercial farmer (those with more than one hectare) is more risk averse, focused less on farming relative to search for and performing off farm work, and more deficit in capital and ability to obtain loans. A **specialized approach** is needed for these families calling for a new institutional structure, emphasizing intensive extension services specific to their needs, access to credit and other approaches. Such a specialized body might usefully be housed in the Poverty Commission, although it would need a link with the agricultural research system, perhaps calling for some specialized research oriented to this group. Dairy would be a special focus, and to a limited extent horticulture. The point is that the services covering the small commercial farmers are generally inappropriate to the subsistence farmers, and in the context of institutions oriented to the small commercial farmers, the subsistence farmers will be left out except for those very few who can respond to the approaches suitable for the small commercial farmer.

A2.13Food and Nutrition Security[93]

672. Table 59 highlights the key issues in food security in Nepal, using the World Food Summit definition of food security as a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preference for an active and healthy life.

673. There are at least two aspects related to food and nutrition security (FNS) that needs to be highlighted in the context of the preparation of the ADS. First, although FNS is a different concept from Food Self Sufficiency, there is a large part of stakeholders in Nepal who interpret the objective of FNS as increasing foodgrains production to achieve self-sufficiency. From this point of view, whether self sufficiency in foodgrains is economically desirable and efficient is not a major consideration; food security is narrowly interpreted as food availability and food availability is interpreted as foodgrain production at a higher level than population's requirements. The additional question whether food self sufficiency ensures nutritional security or not is often neglected, in spite of evidence in Nepal and other countries that food self-sufficiency and even food surpluses can occur even in the midst of persistent food poverty, malnutrition, and food vulnerability.

674. Second, food security is often identified with calorie intake rather than a balanced diet of nutritious food. From a long-term perspective (20 years) the diet in Nepal is expected to change, certainly among the upper quintiles of the population, towards a lower consumption of staples and more diversified consumption of fruit and vegetables, meat and fish products, and dairy products. The strategic implications of this for ADS are crucial, and highlight the issue of the extent to which research and extension work and overall agricultural investment should primarily be directed to foodgrains as in the past, or to other commodities.

675. Food and nutrition security is a complex concept with multiple dimensions. The ADS will need to address several of these dimensions. At the same time, the GON in cooperation with FAO has prepared a **10-year Food and Nutrition Security Action Plan**

[93]An effort by GON and FAO to formulate a Food and Nutrition Security Action Plan.

(FNSAP). Ultimately, the FNSAP and MSNP will be implemented by the FANUSEP Flagship program of the ADS.

Table 59 Issues in Food and Nutrition Security

Dimension of Food Security	Issues	Evidence
Availability	• Low production and stagnant productivity • Population growth higher than the growth of cereal production • Limited Infrastructure for food storage	• Productivity of major crops lowest among South Asia • Nepal net importer of food products
Accessibility	• Poor connectivity: impairs both physical and economic access. • Limits the access to various inputs, extension services and marketing opportunity for their produce • Rising food price since 2005/06; food price inflation higher than general inflation. Urban poor are severely affected as they are mostly food buyers • Poorest households allocate almost three quarters of their income to food	• Road density in Nepal 12.4 km/100 sq.km in 2015, whereas in Himachal Pradesh, Uttarakhand and Sikkim of India, it is 90.6 and 98.4 and 79.1, respectively in 2012 • Only 43 % of the population has access to all weather roads and more than 60% of the road infrastructure is located in the Terai. • High price of food in Kathmandu and high hills
Absorption and Utilization	• Low dietary diversity • Inadequate attention to utilization of minor crops • Social, Geographical and Temporal variation in terms of consumption behaviors and health indicators • Low awareness on food safety • Changing consumption behavior (fast foods, sedentary life style, sugars and fats consumption contributing to obesity and diabetes) • Assessment of food security based only on cereal production and availability	• 41 % of the population unable to meet the minimum daily per capita intake of 2,144 kcal and about 37% of <5 years old children are stunted, 11% wasted and 30% underweight • About 36 % of women suffer from anemia in rural area against 28 % in urban area, 27 % in hills and mountains against 42% in terai, and 35% in the country • Vulnerable communities such as Dalits, Adivasi, Janajatis and ex-bonded laborers often struggle to access sufficient food. • Recent report on pesticide use survey by DFTQC showed high pesticide residues (urban, peri-urban)
Stability	• Agriculture becoming more volatile • Poorer households more vulnerable and low resilience power • Agriculture labor migration • All weather road vs fair weather road • Weak preparedness against	• Climate change implications on agriculture increasingly visible • The 2008 flood in eastern region, and 2015 Mega-Earthquake in in the country had implication in agriculture production and the livelihood of people • Youth migration to middle east

Dimension of Food Security	Issues	Evidence
	disaster	countries often motivated by political instability

Source: TA Team based on UNDP 2010, USAID 2010. GON Economic Survey 2015/16; GOI/MOSPI Infrastructure Statistics 2014; World Bank 2013 Nepal Highway Data; NPC 14th Plan; CBS MICS 2014; MOHP NDHS 2011

676. **Soaring Food Prices, Food Price Volatility and Coping Strategies**: With Nepalese households spending 36 per cent of their income on food, high food prices imply reduction of their food expenditure (NRB: 5th Household Budget Survey 2014/15). The most common coping strategies include: relying on less preferred foods (67 per cent), reducing meal portions (29 per cent), reducing spending on non-food items (26 per cent), and reducing spending on food/ borrowing money for food purchasing (14 per cent). During the high food price crisis in 2008, about 12 per cent of the households skipped food for a day.[94] The NLSS 2010/11 found the incidence of households' food insecurity coping strategies as: Borrow food or money 68%; Buy food on credit 57%; Eat cheaper or less preferred foods 51%; Eat less for each meal 42%; Reduce number of meals in a day 33%; Feed children by reducing adult member's share 18%; Eat seeds preserved for sowing 13%; Skip days without meals 11%; and other measures such as send household members to eat elsewhere, reducing other's share, eat wild-food or unripe crop-food and sell assets.
The ADS will need to consider strategies to reduce the vulnerability of the poor to soaring and volatile food prices.

677. **Food Availabilty and Food Security.** Despite cereal production growth (1.2% annually) being less than population growth, the small amount of cereals imported (about 7.8% of total production) has been assured through imports from India, even during the period of export controls 2008/09- 2015/16. There are two important trend assumptions in using cereals as an indicator of food security: (i) continuing population growth; and (ii) consumption of rice per capita. Over the next decade, Nepal's population growth rate is expected to start to decline. In fact, this might have already been happening as the Census of Population 2010 data shows that population growth has declined to 1.35% annually.

678. If Nepal follows trends of other Asian countries, more wheat products will replace rice in the diet. The deficit that may increase is for animal feeds (maize and soybean, etc.) as demand for meat and other livestock products increases. At least for maize, there is considerable potential to improve based on higher yields from improved varieties achieved by a growing number of farmers.

679. **Monitoring and Evaluation of Food and Nutrition Security**. There are a number of systems in Nepal that are involved in food and nutrition security monitoring and evaluation.

[94] United Nations World Food Programme WFP, 2008.

A background paper prepared by WFP[95]provides an extensive discussion on the features and limitations of the main systems. Food and nutrition security is a cross sectoral issue and its monitoring requires a multi-sectoral approach. Such approach needs to be guided by coherent principles to ensure that the different efforts implemented are linked together to achieving an efficient and effective implementation of food and nutrition security monitoring system. The system is to be guided by a clear and strong statement of what a comprehensive food and nutrition security monitoring should consist of, and how it should be used. Food and nutrition security is a cross-sectoral issue, which does not fall under the mandate of a single ministry and requires a leadership with a solid inter-ministerial coordination capacity. Ensuring the functional linkages among existing systems between different levels, central and local levels as well as policy and technical levels, is another area of further enhancement.

A2.14 Institutional Issues

680. **Credibility of Policy.** Policy Implementation cannot be effective unless society believes that government's decisions are consistent and sustained over time with adequate institutions, investments, and enforcing mechanisms. Continuous changes in leadership of the institutions involved in the agriculture sector do not allow to build capacity and competences to carry out programs effectively. Gaps between policy statements and implementation (eg. Agribusiness Policy 2005) have a negative effect on investment and compliance with rules and regulations. The push toward decentralization and devolution is not helped by the lack of elected bodies at the local level. The changes in input subsidy policy over the past 20 years (subsidies, withdrawal of subsidies, and again subsidies) leave great confusion and uncertainty.

681. **Coordination.** The experience of APP and other programs has shown the difficulty of coordinating effectively across multiple agencies and different administrative levels (central, district, village). Noteworthy, APP coordination was weaker at central level (among agencies such as NPC, MOAD, MOI, …) than at district level. Even within the same agency, there are difficulties in coordinating related programs. For example, there are different bodies within NPC for food security and nutrition. Within the same irrigation scheme, it is difficult to coordinate between irrigation engineers and agricultural extension officers. There is inadequacy in national level NGO program coordinating body.

682. **Capacity and Human Resources.** Limited capacity is reflected both in terms of (i) institutional capacity and (ii) human resources capacity. Relevant institutions have limited capacity in policy analysis, planning, service delivery, and implementation. There is little analytical work and output related to policy. Formulation of policy occurs often without adequate analytical or evidence-based analysis. Policy implementation is insufficiently monitored and evaluated, or is delayed until it is too late to make adjustments and corrections. Limited human resources to serve large farming population and inadequately trained service providers result into poor quality of service delivery and inability to meet service demand of a large population of farmers and potential agribusiness enterprises. Currently, in the case of crops, there is one extension agent to serve approximately 1,399

[95]WFP Monitoring and Evaluation for Food and Nutrition Security.Assessment, Vision, Options, and Strategy Background Papers for the Preparation of the ADS, 2013.

farmer households[96]. The improvement of capacity of existing human resources is also limited by declining budgets for training and capacity building and limited incentives to provide services, particularly in areas that are not easily accessible.

683. **Accountability**. It is not clear who is accountable for achievement (or lack thereof) of outcomes and outputs of government programs and projects. The system of accountability (rewards and punishments) does not seem to work. Results-based performance systems are not functional. The government is aware of these issues and has expressed concern about transparency of public expenditures. More generally, there seems to be a weak link between performance of programs/projects and career growth. Formats of performance evaluation for public servants are very general and not specific to the tasks performed.

684. **Underfunding and Effectiveness of Investment.** In spite of considerable rhetoric on the critical importance of agriculture, investment in the sector is inadequate and has been declining. Insufficient funding implies a lack of continuity of programs and cuts in resources that are critical to program effectiveness. Even when funding is available, however, a critical issue is the effectiveness of investment and expenditures. In the case of infrastructure such as rural roads and irrigation schemes, the construction is often faulty and operation and maintenance is lacking, both situations resulting in poor returns on initial investments.

685. **Decentralization** under the Local Self Governance Act 1999 prioritizes development through periodic district development plans, providing a local planning base for ADS. Programs with budgets and staffing for agriculture and livestock services have been devolved to district development committees. Initiatives have promoted service provision through private and NGO agents in partnership with the Ministry of Agricultural Development (MOAD). However, there are issues with limited capacity, institutional coordination and local administration of taxation and revenues. For example, the local bodies are unable to effectively implement or regulate Acts and regulations such (Tax, Land, local transport fees) and collect revenues from all sources as envisaged in the LSGA 1999 primarily due to administrative inefficiency and indifference of local political leaders who feel they will lose support if they support enforcement.

686. **Cooperatives.** There a tension between policy promoting cooperatives and also commercialization. Enterprises registered under the Companies Act pay corporate tax, and their employees pay income tax, while those registered under the Cooperatives Act do not, resulting in a disincentive for full commercial development and rural employment generation, and constraining fiscal revenue. Companies are required to comply with various legislation regarding accounting, employment and contracts, while cooperative responsibility is limited. As per the Interim Constitution of Nepal Article 35(2), the Government promulgated the Cooperative Policy 2069 BS (2012), which has a provision of National Cooperative Policy Direction Committee headed by the Minister, and comprising the NPC VC, Secretaries from 12 ministries, NRB Governor and others. The Constitution of Nepal Article 51(d) on policies regarding finance, industry and commerce has provision for:

[96]This was based on estimates by the TA Team of about 2,875 Crop extension workers (including subject matter specialists and supporting technical staff, source www.doanepal.gov.np) and a farmer households of 3.364 million in 2001, 3.831million in 2011, and estimated population of farmer households of 4.021 million in 2015 with a growth rate of 1.22% annually (CBS: National Sample Census of Agriculture).

strengthening national economy through the participation and free development of public sector, cooperative sector and private sector; and promoting cooperatives with its maximum utilization for national development. The 14th Plan (2016/17-2018/19) has emphasized the need to involve co-operatives in productive works through their participation alongside microfinance in the production and service delivery. In view of these, the government has been working on the Cooperative Act 1992 (amendment bill 2016) with the stakeholders covering issues such as improvement of legal framework for better regulations, actions on irregularities, scope of cooperative's business, consolidations, and tax on cooperatives.
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A2.15 Climate Change

687. A few new environmental challenges and opportunities have emerged in recent years which were not prominent and identified at the time of APP preparation. Those are the threats from climate change: climate induced natural disasters such as erosion, landslide, flood, drought, cold waves and heat waves; opportunity for carbon finance, and the needs of preparedness for disaster risk management such as early warning and insurance. Similarly, arsenic problem in underground water in the Terai was mainly identified in the early 2000s. The importance and usefulness of Geographic Information and Remote Sensing Technology in planning agriculture development was not considered.

688. The observed data shows consistent warming and rise in maximum temperature at an annual rate of 0.04-0.06 °C. Warming is more pronounced in higher altitude than in the Terai and Siwalik region. Annual precipitation data show a general decline in pre-monsoon precipitation in far-and mid-western Nepal with a few pockets of declining rainfall in the western, central and eastern regions. In contrast, there is a general trend of increasing pre-monsoon precipitation in the rest of the country. Monsoon precipitation shows general declining trends in the mid-western and southern parts of western Nepal, with a few pockets of declining rainfall in the central and eastern regions. In the rest of the country, monsoon precipitation has generally increased. Post-monsoon precipitation shows increasing trends in most of the mid-western and the southern parts of eastern and central/western Nepal. A general declining precipitation trend is observed in most of the far-western and northern parts of the western, central and eastern Nepal. The winter precipitation trends show overall increasing trends except the northern part of mid-western, western and eastern Nepal (NAPA, 2010).

689. IPCC (2007) projects that there will be a general increase in the intensity of heavy rainfall events in the future and an overall decrease by up to 15 days in the annual number of rainy days over a large part of south Asia. Significant warming particularly at higher elevations results in reduction of snow and ice coverage, increased frequency of extreme events, including floods and droughts, and overall increase in precipitation during the wet season while decrease in the mid-hills. Analysis of daily precipitation data for 46 years from 1961-2006 shows an increasing trend in precipitation extremes. About 73% stations (out of 26 total stations selected for study) exhibited increase in the annual count of days when precipitation is greater or equal to 50 mm (Baidya et al., 2008).

690. Loss/degradation of agricultural land, decline in crop and livestock production and loss of local races and crops are some of the impacts in agriculture sector. Similarly, shift in agro-ecological zones, forest fire due to prolonged dry spells, high incidence of pests and

diseases, emergence of new alien and invasive species and loss of species and habitats, changes in terms of early sprouting, flowering and fruiting, decline in the productivity of some of the herb and grass species and depletion of wetland are some of the impacts indentified in forest and biodiversity sector.

691. Water resources and energy sector is likely to be affected. The problem of too much and too little water in time and space is likely to increase. As a result, hydroelectricity generation, irrigation, drinking water supply and sanitation are likely to be affected. Studies show that ELA has been shifting up by 25-79 m (1959-1992), majority of glaciers are retreating by 30-60 m (1970 -1989) and the glacier surface is thinning by nearly 12m (1978-1989). The rate of retreat has accelerated in recent years. Accelerated melting of glaciers has caused creation of many new glacier lakes and expansion of existing ones. As a result, the risk of Glacial lake Outburst Flood (GLOF) is increasing. Analysis of river discharge for the period of 1947-1994 showed a decreasing trend, particularly during the low-flow season. In rivers fed by glaciers, the run off first increases as more water is released by melting due to warming. As the snow and glacier volume gets smaller and the volume of melt-water reduces, dry season flows will decline to well below present levels.

692. Another important sector adversely affected is irrigation. An increase in temperature by 3ºC would cause an increase in annual irrigation water demand by 11%, while other parameters of water demand remaining constant. Nepal is already experiencing water deficit during 4-5 months in the non-monsoon season. Further warming may worsen the situation.

693. Many vector born and water-borne diseases are sensitive to climate change. The incidents of landslides, floods and drought are likely to increase and the loss/damages of service infrastructures are likely to increase.

A2.15.1 Carbon Financing

694. The policy and strategy documents to date, including in agriculture, forestry, and water resources, have not yet given enough attention to the rapidly developing global market and financing opportunities for reducing carbon emission and sequestration, and other services provided by the environment, termed "payments for ecosystem services". These emerging opportunities have implications to develop supporting legislation, institutions, taxation and capital markets (stock exchange), trade, as well as forest and water policy.

695. Nepal is party to various international discussions and (possible future) agreements on climate change and greenhouse gas (GHG) emissions. Nepal has a GHG inventory, official communications as party to the UNFCCC[97] 1992, and the recent National Plan of Action on Climate Change (MOFSC 2010) and Climate Change Policy 2011. Nepal has established an initial capacity to develop and accredit projects that meet international regulatory requirements for carbon trading. For example the REDD cell in MOFSC. There are also recently in Nepal accredited forest enterprises (community forestry groups) that receive carbon trade revenue. REDD approach entails the idea that a developing country which is experiencing deforestation (loss of area of forest e.g. through conversion to agriculture or

[97]United Nations Framework Commission on Climate Change

through logging) may, on a voluntary basis, receive compensation if it reduces its national deforestation rate, in proportion to the amount of carbon emissions that are thus reduced.

696. MOSFC has published a Forest Carbon Measurement Guideline (2011)[98]. Amongst initiatives, there is a pilot project "Design and setting up of a governance and payment system for Nepal's Community Forest Management under Reducing Emissions from Deforestation and Degradation (REDD)" project, funded by NORAD and implemented by Asia Network for Sustainable Agriculture and Bioresource (ANSAB), International Centre for Integrated Mountain Development (ICIMOD) and Federation of Community Forestry Users, Nepal (FECOFUN). Industrial Policy (2011) has set out special measures for green industries. Nepal National Biodiversity Strategy and Action Plan 2014-2020 focus on enhancing the resilience of ecosystems, species and human communities to climate change impacts. Forest policy 2071 (2015) works to widen carbon sequestration by sustainable forest management with due consideration on changing climate, and support for alternative energy, bio briquette, biofuel, improve stoves etc. As per Climate Change Policy 2011, MoST's has circulated the Low Carbon Economic Development Strategy for review by respective ministries to promote resilience to impacts of climate change and a lower-GHG-emission economy for different sectors, such as energy, agriculture, health, water resources, infrastructure etc.

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697. Hydropower projects can also qualify for REDD, and other schemes accepted under the Clean Development Mechanism.

A2.16 Social and Geographic Inclusion

698. Poverty, social and geographic exclusion, and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepal society has led in the past to polarization and social conflict. The ADS will need to identify mechanisms that value diversity, eliminate or reduce polarization, and create cooperative arrangements for mutual benefits of the parties involved. This will need to be realistically formulated given the economic stage of development, the resources available, and the support of a leadership capable of promoting consensus around the strategy and its implementation.

699. **ADS, Poverty and Inequality:** An important reason for promoting agriculture in Nepal is that a large proportion of the poor live in rural areas and depends on agriculture for their livelihood. The Living Standard Survey 2010/11 provides key information on the multidimensional aspects of poverty in Nepal and indicates some of the most promising paths for reducing poverty. The NLSS 1995/96 and 2010/11 results show that: (a) Poverty in Nepal has declined at a very good pace leaving only a quarter of the population poor in 2010-11 and MDG-1 of halving extreme poverty is likely reached already; (b) The decline in poverty is noted in multiple dimensions going beyond consumption based measures; (c) People's own sense of adequacy of income also has improved significantly; (d) Nepal has become less unequal, disparities among ethnic groups have reduced in poverty; (e) A good

[98] http://www.forestrynepal.org/images/publications/Carbon_measurement_Guideline_Nepali.pdf

part of the reduction in poverty is attributed to migration abroad and the direct and indirect consequences of that, and increase in real agri-wage rates; and (f) Public provision of goods, particularly, the improvement in access to roads and social services are also a part of the explanation. OHPI (2016) shows that the MPI in Nepal declined from 64.7% to 28.6% during 2006-2014.

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700. **Rural Organizations**: Given that a large proportion of the population lives in rural areas, Rural Organizations (ROs) have an important role to play in the development of agriculture. Cooperatives and ROs working in the area of microfinance (Nepal Rural Development Organization, NeRuDO), improving livelihood of resource-poor farmers (Sustainable Agricultural Development Program, SADP[99]) and empowerment of women (Woman organizing for change in agriculture and NRM, Wocan[100]) are few examples on which further analysis in later stages of the TA will build up its strategic recommendations.

701. **Linking Smallholders to Value Chains**: The issue of connecting poor smallholders to markets has become increasingly important with income growth and urbanization causing a shift in consumer demand; and supermarkets and processors playing an increasingly important role in food marketing in response to new technology and changing consumer preferences.[101] Small farmers face several challenges, such as high transaction costs in accessing inputs, credit and marketing facilities. What would make commercial agriculture less risky for smallholders? Special policies need to be formulated that would link smallholders with formal markets.

702. **Political Economy of Agricultural Policy Reforms**: Experience shows that influential rich farmers and politicians may work together towards creating barriers that impede public investment on agriculture which specifically benefits the smallholders (Birner and Resnick, 2010)[102]. The ADS will have to take this reality into account and propose ways and means by which the feasibility of equitable development strategies can be enhanced.

703. **Gender and Social Inclusion of Women**. A number of policies have acknowledged the importance of women's contribution to agricultural development and economic transformation. The major flaw, however, is the translation of general statements into action. There is a large mismatch between vision, plan, and action. In a nutshell[103], the programs are not adequately linked and the budget hardly touches upon the issues related to persistent structural hindrances to engender the development sectors in Nepal. The budget is silent over how to enhance women's strategic positions by recognizing women as independent and autonomous farmers, ensuring women's access to means of production, enhancing their leadership competence and

[99] http://sadpnepal.org/about/
[100] http://www.wocan.org
[101] Refer:Thapa, G. (2009). *Smallholder Farming in Transforming Economies of Asia and the Pacific: Challenges and Opportunities*. Discussion Paper, IFAD and Thapa, G. and R. Gaiha (2011).*Smallholder Farming in Asia and the Pacific: Challenges and Opportunities.* IFAD conference on New Directions for Smallholder Agriculture, IFAD: Rome.
[102] Birner, R. and D. Resnick (2010): The Political Economy of Policies for Smallholder Agriculture, in: World Development, Vol. 38 (10): 1442-1452.
103 See Ghale, Yamuna. (2008) Feminization of Agriculture Sector in Nepal.http://www.nepalnews.com/archive/2008/others/guestcolumn/oct/guest_column_08.php, accessed on 10-11-2010

creating acceptance, and improving women's position in different structures of the government, non-government and private sectors. For example, the scientific land reform and management does not speak about ensuring equitable access of women to land; standardization of education system does not provision any incentives for female students; and lack of recognition of women leasehold farmer, tenant, haliya[104] has structurally blocked them to stand as a rights holders, organize themselves, claim their rights and enjoy dignified life. Therefore, dealing with gendered agriculture sector development should be a priority of the government, civil society, development actors and private sectors. Women's access to credit can be guaranteed only when they have not only access but direct control over land and other productive resources.

A2.17 Legal Issues

A2.17.1 Food Safety and Quality (FSQ)

704. The 1967 Food Act is outdated and the FSQ standards and accreditation mechanisms for certification bodies required by international agreements and third countries have not been incorporated into Nepali legislation yet. The legislation, which would adequately set standards for value chain in terms of food quality and safety both for consumption in Nepal and more importantly for export to third countries, needs to be updated if Nepal wishes to sustain its export agribusiness[105]. There is also no appropriate regulatory framework that would enable a suitable FSQ oversight to take place, to the detriment of agribusiness and trade. At the lower end of the value chain it was pointed out that at present there are confusions with respect to zoning provisions that protect water and land resources used for agricultural purposes from contamination. Recently, there have been major policy developments in the areas of foods and FSQ as set out the Constitution of Nepal, Food Act amendment bills 2016, and the Food Safety Policy 2016. The Constitution of Nepal Article 44 assures all consumers to have right to the quality foodstuffs and services, and arranges that consumers have the right to complain against and compensated for the loss and damage due to unhygienic and sub-standard foods stuffs. Food Act 1967 (4th Amendment bill, 2016) broadens the coverage of foods to all types of edibles; redefines food adulteration to include the food contamination, presence of chemical residues, microbes and toxins; authorizes the DFTQC to promptly penalize the wrongdoers, and raises penalty up to 20 times; and arranges to carry out the risk assessment and quality certification also at the custom points about food contamination, labeling and use of additive substances for preventing import of the low-quality foods. Draft National Food Safety Policy 2073 BS (2016) includes major working policies: Implementation of the food safety and quality regulation at the central, state and local government levels; Food safety related laws and institutional improvement built on the risk based food safety and quality control system; Scientific food safety and quality management systems (namely GAP, GVP, Codex Guidelines, Good Hygienic Practice, Good Manufacturing Practice, Hazard Analysis and Critical Control Point, ISO 22000) in the food-chains; Inspection and certification in trade of food commodities, and the mutual recognition and equivalence treaty with different countries; Development of food epidemiology surveillances system; strengthening the food safety and quality related ICT, and mass awareness; and Formation of National Food Safety Council.

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[104]An agricultural bonded laborer who works on another person's land. The literal meaning of Haliya is 'one who ploughs'. Haliyas can be found throughout Nepal. But the Haliya system in the far western hilly part of Nepal is considered a bonded labor system.

[105]A consultancy to the Department of Technology and Food Quality at the MOAC is working on a redraft of the Food Act.

A2.17.2 Commerce and Trade

705. **International Trade:** The international trading agreements to which Nepal is party are still in the process of being transformed into national law by way of implementing legislation. Although Nepal acceded to the WTO in 2004, the process of adapting the legislation is far behind the schedule set by the MOCS[106] (Ref above Sec A2.7.1 Agri Trade Issues on Commerce Policy 2015, and Nepal Trade Integration Strategy 2016 BS).

706. **National Commerce**: The policy of the government to prefer cooperatives over the private sector leads, in certain instances, to an inefficient use of resources. The policy that only the Agriculture Inputs Co. Ltd. (AIC) and Slat Trading Corporation Ltd have the right to receive subsidies and only for supply of fertilizers through Cooperatives to farmers discriminates against the private sector which, if importing fertilizer, does not enjoy the subsidy and can therefore not compete with AIC. According to the private sector, the trade through AIC and cooperatives causes higher prices for the farmers and also to increased smuggling of fertilizers from India, some of inferior quality.

707. The Contract Farming Act is being considered by the Government to address some of the land use practices prevalent in the rural sector. The impact of this on existing legislation and policies will have to be reviewed.

A2.17.3 Natural Resources

708. **Water Resources**: The Water Resource Act (WRA) of 1992 is not demand driven or otherwise based on IWRM principles[107] and the management of Nepal's water resources is still carried out on the basis of administrative rather than hydraulic boundaries. While the WRA and the 2000 Irrigation Rules allow for the formation of water user associations (WUAs) and the Irrigation Regulations 2000 (Revision 2004) provide for the formation of User's Coordination Associations in practice registration of WUAs is carried out sometimes under legal frameworks other than the WRA (under the Societies Act or directly with the District Office of the DOI). Furthermore, there is no provision in the Act or the Rules that would allow the engagement of Service Companies in the Irrigation Sector, for example, for maintaining large canals. Irrigation Policy 2070 has brought about some legislative improvements such as: Formulation and implementation of irrigation master plans along with the development and management of river water basin area; Implementation of IWRMP for development of irrigation projects; Declare irrigated area, and need prior approval from government for its non-agriculture uses; Involvement of private, community and co-operative sectors on irrigation system construction, operations and management; Effective involvement of local bodies and WUAs on formulation, construction and

[106] See Revised Legislative Action Plan of March 2011

[107] Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (definition by the Global Water Partnership – GWP.

management of irrigation project; and collection and mobilization of irrigation fee. On the other hand, the Water Induced Disaster Management Policy-2072 focused on the integrated water resource development and management strategy for water induced disaster management.

709. In discussions with the Nepali Federation of Irrigation Water Users Associations (NFIWUA), the lack of the involvement of WUAs in making decisions about water resource management and use was repeatedly mentioned. It should be noted that the water resource legislation does not have a built-in structure for public participation and that the users are represented in a few management bodies only [108].

710. While the WRA requires licenses for certain groundwater water uses, but in practice the licenses are neither sought nor issued.

711. Groundwater depletion may be an issue mainly in the Kathmandu valley, and even here depletion is only observed in dry years. In wet years, the water more or less recovers during the wet season. GWRDB will enquire, but current advice from Groundwater Division of DOI is that there is not permanent depletion in other valleys, most of which rely on surface water for domestic and industrial use.

712. The agreements with India on the Transboundary Rivers do not cover all rivers nor do they adequately protect the Nepali interests in terms of water allocation, hydropower development and flood control.

713. **Land Resources**: A review is recommended on the Land Act and its enforcement, of the functioning of the Land Use Council, of the legal framework for land use and zoning policies, of ownership / tenancy rights and of the legal aspects of farmland use for non agricultural purposes and/or keeping farmland fallow, etc. MoLRM has started a Road Map of the 2nd Generation Reform on Land Governance (2015) for reformation of land evaluation and tax system, and institutionalization of land market (through development like stock market, service tax/revenue collection from stakeholders, and land information system).

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A2.17.4 Public Enterprise Reform

714. There is a need to review the compatibility of the legal framework of public enterprises (PE) operating in the agriculture sector to their actual functions and the needs of the sector. The key issues that have been defined hitherto include: the affiliation of the PEs in the sector to different Ministries which affects coordination and mobilization; the relations between the functions of the PEs and similar private sector enterprises and the question whether government involvement is required in each case; possibility of privatization of functions of PEs; the Agricultural Ministerial oversight over Cooperatives outside the agriculture sector; the need of legal framework for PE intervention in price control and supply guarantee; and the possibility of PPP in PEs.

[108]For example neither the Water District Committee (Water Resources Rules 2050 (1993) § 8 nor the Water Resources UtilizationInquiry Committee (ibid § 28) both of which deal with water resource related issues include user representatives.

A2.17.5 Government Institutions and Planning

715. The TA Team has identified the existence of a multitude of ministries and other governmental bodies that operate in similar or close areas, such as the MOI, the DOI, the WECS and the Groundwater Development Board to name just some bodies operating in the water/irrigation sphere. While the mandates of these bodies are different, the question of consolidation to form a one-stop shop for the users might be considered.

716. In addition, there appears to be difficulty in the implementation of policies and legislation that are under the responsibility of more than one ministry. Part of the weakness can be attributed to the absence of suitable multi-sector institutional structures that implement policies. The attempt made by the Government to establish the National Support Commission (NSC) and under that the Independent Analytical Unit (IAU) for implementation of the APP faced difficulties in light of feared encroachment upon responsibilities of line ministries with the MOAD having been responsible for overall implementation of the APP without having received the tools or resources to do so. Accordingly there is at present no multi-ministerial framework for the coordination and implementation of a multi-sector policy such as the APP or the National Agricultural Policy 2004.

717. A third area that was indicated deals with the devolution of functions of development line ministries to district level authorities requires revisiting especially with respect to the three line ministries (MOAD, MOI and MOFALD) involved in the agriculture sector.

APPENDIX 4. METHODOLOGY FOR TARGETS AND INDICATORS

718. Table 18in the main text contains the targets and indicators for the ADS vision components. Table 20contains the targets for the outcomes of the ADS. These targets and indicators will be further validated during the period between completion of the ADS Preparation TA and the approval of the ADS by the GON. Targets have been established according to the principle of being specific, measurable, attainable, realistic, and timely (SMART principle). Assumptions and baselines have been indicated in the tables. Additional information about the targets and way of calculations are provided in this appendix.

719. As part of the periodic (five years) review and evaluation of the ADS implementation, both the targets and indicators will be assessed and evaluated. The periodic reviews and evaluations of the ADS might suggest the need of establishing new targets and indicators or simply update the targets and indicators that are already in the intial ADS documents. As mentioned in the text (see section 10.6) the ADS is a "living strategy" that requires continuous updating, review, and improvement.

720. The monitoring and evaluation of the ADS conducted during each quarter will provide assessment of progress towards the outcomes and overall vision of the ADS. Output and outcome indicators will be assessed on a periodic basis.

721. Updating the targets and indicators requires addressing the following questions:

1. Have we achieved the targets?
2. If not, what are the reasons?
3. Are the targets still relevant?
4. If not, what are the new targets
5. Are the indicators still relevant?
6. If not, what are the new indicators?
7. How do we update the targets and strategies for the remaining period of the ADS?
8. What assumptions do we need to change?

722. The updating will require simple manipulations of the tables provided in the text. The main effort is to decide why and what needs to be updated.

Table 60Targets for Major Foodgrains

Crop	Indicator	Unit	Baseline 2010	Baseline (TYAE 2015/16 *	Assumed Growth Rate	Short Term (5 year)	Medium Term (10 years)	Long Term (20 years)
Paddy	Area	Thousand ha	1,481	1,425	-0.10%	1,418	1,411	1,397
	Production	Thousand tons	4,023	4,708	1.60%	5,097	5,518	6,468
	Yield	Kg/ha	2,716	3,300	1.70%	3,591	3,906	4,624
Maize	Area	Thousand ha	875	901	0.80%	938	976	1,057
	Production	Thousand tons	1,855	2,253	3.00%	2,612	3,028	4,070
	Yield	Kg/ha	2,120	2,502	2.20%	2,789	3,110	3,866
Whe	Area	Thousand			0.70%	790	818	878

Crop	Indicator	Unit	Baseline 2010	Baseline (TYAE 2015/16 *	Assumed Growth Rate	Short Term (5 year)	Medium Term (10 years)	Long Term (20 years)
at		ha	731	763				
	Production	Thousand tons	1,556	1,890	2.40%	2,128	2,396	3,037
	Yield	Kg/ha	2,129	2,477	1.70%	2,695	2,932	3,470
Total	Area	Thousand ha	3,087	3,089	0.35%	3,144	3,199	3,313
	Production	Thousand tons	7,434	8,852	2.12%	9,831	10,918	13,466
	Yield	Kg/ha	2,408	2,864	1.77%	3,127	3,414	4,068

* Based on three years average for 2013/14- 2015/16

723. Growth of yields in the table 60 above are consistent with the proposed ADS measures for investment in irrigation, seed, input delivery systems, and agricultural research, extension, and education. Yield improvements are well within the reach of the potential and gaps between current practices and technologies already available within the research and extension system.

724. In the case of paddy, it is assumed that rice cultivated land will not expand and will actually reduce a little bit. Shifts in demand consistent with general patterns of food consumption in Asia and the region will imply lower consumption per capita of rice and more consumption of meat. Higher meat consumption in Nepal will be consistent with higher poultry consumption which will rely on expanded feed (mostly maize) availability.

725. Total area for foodgrain production will increase mildly, particularly as consequence of expanded irrigated areas and winter and upland crops production.

Table 61Major Foodgrains Availability per Capita

Item	Indicator	Unit	Baseline 2010	Baseline 2015	Assumed Growth Rate	Short Term (5 year)	Medium Term (10 years)	Long Term (20 years)
Population	Total Number	Thousand	26,600	28,038 (*)	1.14%	29,669	31,394	35,153
Gross Paddy Availability per Capita	Production per capita	Kg/cap	151	168 (^)	0.20%	170	171	175
Gross Maize Availability per Capita	Production per capita	Kg/cap	70	80 (^)	1.60%	87	94	110
Gross Wheat Availability per Capita	Production per capita	Kg/cap	58	67 (^)	1.00%	71	74	82
Gross Foodgrain Availability per Capita	Production per capita	Kg/cap	279	316 (^)	0.72%	327	339	364

Note: (*) Population of 2015 cited from National population and Housing Census 2011 (Population Projection 2011-2031)
(^) Based on three years average production during 2013/14 - 2015/16

726. Availability of food production will growth faster than population growth and therefore assure self-sufficiency. The objective is to ensure that a landlocked country like Nepal could assure sufficient foodgrains to its population at all times. Growth of maize

production should also assure meeting the needs of the feed industry to serve an increasing demand for animal protein.

A4.1. Agricultural Trade Balance

727. Agricultural trade balance will move from a deficit of almost $ 1, 123million in 2015 to a surplus of almost $ 510 million by 20 years. This will be possible through a combination of competitiveness measures indicated in the ADS and the promotion of agricultural exports and import substitution.

Table 62 Agricultural Trade Assumptions

	Base 2010	Base 2015	Growth Rates	Short Term (5 year)	Medium Term (10 years)	Long Term (20 years)
Exports (million $)	248	255	12.3	456	814	2,598
Imports (million $)	598	1,378	2.1	1,529	1,696	2,088
Trade Balance (million $)	-350	-1,123		-1,073	-882	510

Source: Calculated by ADS Team based on TEPC data.

A4.2. Assumptions Underlying ADS Targets

728. Assumptions about the underlying variables and parameters used in the targets and indicators in the text are reported in the following table 63. By the end of the ADS a population of about 12 million will be living in urban areas and will be served by a more prosperous farming population well integrated with agribusiness industry. Agricultural labor might still be similar in absolute size to the current one but will be a smaller share of the total (declining from 62% of total labor force to 48%).

Table 63 Assumptions regarding Key Variables in the ADS

Item	Unit	Growth Rate	(Baseline 2010)	Baseline (2015)	Short Term (5 year)	Medium Term (10 years)	Long Term (20 years)
Population	Million	1.14%	26.6	28.0	29.7	31.4	35.2
Urban Population	Million	4.13%	4.5	5.3	6.5	8.0	11.9
Rural Population	Million	0.20%	22.1	22.7	23.2	23.4	23.2
GDP	$ Billion	8%	16.9	30.6	44.9	66.0	142.4
GDP/cap	$/cap	6.9%	$635	$1,090	$1,513	$2,101	$4,051
AGDP	Billion	5.0%	$6	8.3	10.6	13.5	22.0
AGDP share	%	-2.8%	33%	32%	24%	20%	15%
Total Labor	Million	2.0%	10.64	16.0	17.7	19.5	23.8
Total Labor in Agriculture	Million	0.7%	7.0	9.9	10. 3	10.6	11.4
Labor Share in Agriculture	%	-1.3	66	62	58	54	48
GDP/Labor	$/cap	5.9%	$1,588	$1,911	$2,543	$3,384	$5,993
AGDP/Labor in Agriculture	$/cap	4.3%	$794	$835	$1,029	$1,268	$1,926

NAGDP/Labor in Non-Agriculture			$3,130	$3,670	$4,650	$5,926	$9,748
Poverty	%	-7.7%	25%	22%	14%	10%	4%
Cultivated land (Total Farm holding)	Million ha	0	3.091	2.526	2.526	2.526	2.526
AGDP/ha	$/ha	5.0%	$1,804	$3,278	$4,184	$5,339	$8,697
Agroindustry GDP share	%		10%	8%	9%	11%	16%
Agroindustry GDP	$ billion	11.8%	1.69	2.4	4.3	7.4	22.7
Agroindustry GDP/Agricultural GDP	%		30%	29%	40%	55%	103%
Poverty in rural Areas	%	-4.8%	27%	24%	19%	15%	9%
Food Poverty	%	-7.5%	24%	28%	19%	13%	6%

Note:
1. ADS (2010) assumptions about population are replaced by the CBS's population projection till 2031, and the average population growth rate for 2015-2031 is used.
2. GDP and AGDP for 2015/16 are in current prices and current exchange rates.
3. The Labour stock in 2015 is based on NPC 14th Plan Approach Paper and CBS Population Monograph Volume III. These refer to the Labour Force Participation Rate (LFPR) in the age group 15 years and above.
4. Labour share in agriculture for 2015 is based on linear projection of the economically active population in agricultural occupation from the census data (1971, 1981, 1991, 2001, and 2011) to year 2015.
5. Agro-industry (=Agri-business) share in AGDP is based on their series in 2000/01 prices; their relative weight are hooked with their quantity growth till 2015/16, and then adjusted for conversion of these weights to the current price weight by comparing with the ratio of AGDP/GDP in current prices.
6. Agri-business is assumed to cover the primary commodities in agriculture sector. Agroindustry is assumed to include the next stage of value addition on these primary commodities such as though the next stage in manufacturing and trading. Hence the share of GDP form Agroindustry (based on the selected agribusiness commodities) could exceed the size of AGDP.

PRIORITIZATION OF VALUE CHAINS IN ADS

729. The prioritization of value chains was based on a set of criteria that were relevant to the ADS, and based on a review of various methods which have been used in Nepal and elsewhere[109]. ADS stakeholders contributed to identifying value chain selection criteria, and subsequently they participated in regional and central meetings to prioritize commodities and their value chains. Stakeholders included MOAD, farmer organizations, commodity associations, academics, donor representatives and NGOs.

730. Production of 43 major agricultural commodities account for greater than 95% of AGDP and 60% of agricultural exports[110]. At the time of value chain prioritization, rice is the most important (19% of AGDP), but 70% is for subsistence. Vegetables are second most important (13.2% of AGP), followed by dairy (12.6% of AGDP). The other most statistically significant in the top 10 are maize, buffalo meat, wheat, fruit, goat meat, and ginger. Lentil is the most important export (29.6% of agricultural exports), next cardamom (7%), wheat (6.7%), tea is fourth (and has a high value-adding component), and vegetables are fifth. Commodities with high commercialization rate include milk, tea, vegetables meat, fish, flowers and others of small scale. There is some specialization in terms of regional importance. The eastern region has more potential as regards the production of high value commodities than the others regions, especially for tea, cardamom, and coffee; the tarai in all regions is the key producer of staple food grains (rice, wheat, maize, pulses and oilseeds); and maize, dairy and vegetables in the western regions.

A4.3. Criteria Used in Value Chain Selection for the ADS

731. Criteria with a focus poverty reduction, growth, intervention potential and cross-cutting issues, a system was deemed appropriate for the ADS. The selection criteria are organised into four broad categories, each of which consists of a number of criteria:

- Poverty reduction potential: criteria here mainly seek to analyse whether sectors are relevant to the ADS target groups – i.e. whether interventions in that sector will possibly affect a large number of people. In order to do so, it is important also to understand how the poor participate in these sectors – as producers, as consumers or workers.
- Growth potential (or potential for increasing growth and access): criteria here assess the potential of sectors to generate growth in employment and income, as well as increasing the poor's access to essential services. To a large degree, this involves looking at some market trends within a specific sector, as well as gaining a first understanding of opportunities and constraints – i.e. in what ways improving the market system might enhance growth and access.
- Intervention potential: here we assess the feasibility for systemic change given the available GON resources, priorities, availability of partners etc.
- Cross-cutting issues: Under this category a number of criteria can be placed such as social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread.

[109]These include criteria used by DFID, Danida, SNV, IFAD, USDAID, UNIDO
[110]Central Bureau of Statistics 2011

732. These criteria are outlined below. Collectively, they represent a comprehensive picture of what is likely to bring successful outcomes from value chain development. Individually, each criterion offers a different strand of programme performance. It should be noted that the various overall and sub-criteria are given a weight, and in the analysis four systems were applied to the various commodities/products (Table 64).

Table 64 Overall Category Criteria and Sub-criteria Employed

Overall criteria category (weight)	Sub-criteria (weight)
Poverty reduction potential (18)	• Significant number of households involved in sector (6) • Poverty incidence of target group in the sector (6) • Impact on disadvantaged areas (6)
Growth potential (12)	• Growth potential in next 5-10 years (6) • Potential for target group growth (income/employment) (6)
Intervention potential/feasibility (15)	• Measurability of impact (3) • Availability of scale agents with high leverage potential (3) • Potential for crowding in (concentration) of market players (3) • Current status of required infrastructure (road, storage, etc.) (3) • Feasibility with given resources and capacities (3)
Other cross-cutting priorities (18)	• Consistency with government priorities (3) • Impact on balance of trade (3) • Opportunities for inclusive development (3) • Explicit opportunities for addressing gender inequity (3) • Opportunities for positive impact on the environment (3) • Geographical spread of sub-sector regionally/nationally (3)
Total (63)	Total (63)

Source: Based on DFID NMDP (2010) methodology

A4.4. **Agriculture Value Chain Selection**

733. Previous ADS reports have discussed in some considerable detail the following: (i) agriculture value chains selection criteria used in the analysis, (ii) mapping and description of agriculture value chains, where a total of 48 value chains across the four major sectors - crop (32 commodities/products), livestock (11), fisheries (2), and forestry (NTFP/MAP - 3) were assessed and prioritised, (iii) subsequently a short list of 15 value chains were defined with the assistance of a wide and diverse range of key stakeholders involved in the agriculture sector. The selection criteria were applied to the 48 commodities/ products suggested by stakeholders. Each participant Value Chain Selection workshops rated (scored and weighted) each commodity. A total of four ranking scenarios were used to rank the top 15 commodities.

Table 65: Top 15 Value Chains Ranking

Commodity/Product	Rank
Maize	**1**
Dairy	**2**
Vegetable	**3**
Tea	**4**
Lentil	**5**
Rice	**6**
Goat	**7**

Commodity/Product	Rank
Poultry	**8**
Potato	**9**
Wheat	**10**
Ginger	**11**
Cardamom	**12**
Oilseeds	**13**
Coffee	**14**
Lowland Fish	**15**

Source: stakeholder workshops reported in *Agriculture Value Chain Development - Policy Options Report* (July 2012)

734. It is important to note that commodities such as rice, goat and potatoes often mentioned by ADS reviewers were selected into the top 15, but did not make the top five. Rice, for example has a large number of participants but has lower growth potential than the top five. Goats can be a pro-poor strategy, but also dairy, which has a much higher potential for growth, employment, nutrition and trade impacts. In certain areas, potatoes may be higher ranked than maize, but not at the overall national level. The top five ranked value chains are estimated to benefit the direct participants in the chain (including farmers, farmer groups, cooperatives, private entities, processors, market traders). It is estimated that a minimum of 60,000 stakeholders in the dairy sub-sector would benefit, as compared to 90,000 for lentil, 200,000 for maize, 8,000 for tea, and 95,000 for vegetable. In all it is expected that a minimum of 0.5 million people/entities will directly benefit, including smallholder farmers and small agribusinesses, including women community, farmers and agribusiness communities in remote locations.

735. This listing does not include value chains important as niche commodities (honey, mushroom, flowers, etc.) and those produced in the more deprived, isolated mountain areas, namely essential oils, wool, MAPs, temperate fruits (apples etc.), and others, on the grounds of their relative impact on the overall rural communities livelihoods across Nepal, but these will be addressed as special support to these areas/commodities through specialised programs within the ADS.

736. The value chains selection also considers the feasibility of addressing the constraints and facing the chain participants, and opportunities for improvement in production, processing, postharvest, marketing, and policy and institutions, contributing towards improved value additions and strengthen market based business linkages in attaining improved productivity, commercialization, competitiveness and governance, with inclusive, sustainable, private/ cooperative sector development, and connectivity.

APPENDIX 5. COST OF ACTIVITIES IN THE ADS ACTION PLAN

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
1				**Improved Governance**					**432,630,000**	**920,000**		**433,550,000**	
	1.1			**Credibility of policy commitment and farmers' rights**	MOAD							**3,600,000**	
		1.1.1		Conduct awareness campaigns on ADS	MOAD policy division	MOAD policy division	campaign	750	375,000		375,000		10 annual campaigns in 75 districts
		1.1.2		Ensure ADS monitoring covers issues of policy consistency and program continuity	CADIC, NSC	ADS Support Unit	program funds	10	200,000		200,000		annual results monitoring
		1.1.3		Formulate and enact regulations to facilitate longer tenure for key ADS positions	MOAD policy division	NPC	Official person month	5	25,000		25,000		regulations
		1.1.4		ADS 5-yearly review	NPC	ADS Support Unit	program funds	2	200,000		200,000		5 yr review
		1.1.5		Promote policy and legislation changes to ensure implementation of the ADS	NADSIC		program funds	10	1,600,000		1,600,000		10 year cost
		1.1.6		Identify mechanisms to promote farmers' right (Farmers' Commission)	MOAD policy division	Farmer Organization	program funds	6	1,080,000	120,000	1,200,000		6 studies; 10% contribution from FO
	1.2			**Improved coordination in ADS implementation**	NPC	MOAD						**8,010,000**	
		1.2.1		Formulate amendments of the regulations for the establishment of NADSCC and CADIC	NPC	MOAD	Official person month	2	10,000		10,000		regulations
		1.2.2		Strengthen the capacity of NADSCC	NPC	MOAD	program funds	10	500,000		500,000		10 yr operating costs

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		1.2.3		Establish subcommittees of NADSCC and ensure they meet regularly	NPC	MOAD	program funds	60	3,000,000		3,000,000		6 subcommittees, 10 yrs
		1.2.4		Strengthen the capacity of Central Agricultural Development Implementation Committee (CADIC)	NPC	MOAD	program funds	10	500,000		500,000		10yr CADIC operation
		1.2.5		Promote similar meetings of the RADC and DADC	NPC	MOAD	program funds	800	4,000,000		4,000,000		5 RADC and 75 DADC, 10 yr operations
		1.2.6		Prepare Annual Sector Report	NPC	MOAD					-		Costed under ADS Implementation Support Unit
		1.2.7		Develop ADS Implementation Guidelines and Monitoring System	NPC	MOAD					-		Costed under ADS Implementation Support Unit
	1.3			**Integrated planning**	NPC	MOAD					-	**1,100,000**	
		1.3.1		Ensure integration of multi-ministry plans	NPC	MOAD	Official person month	10	50,000		50,000		Regulation, annual
		1.3.2		Ensure integration of long-term plans with annual workplans and budget	NPC	MOAD	Official person month	10	50,000		50,000		Regulation, annual
		1.3.3		Ensure regular monitoring of plans	NPC	MOAD	program funds	20	1,000,000		1,000,000		Committee operations
	1.4			**Effective implementation support**	NPC	MOAD						**7,040,000**	
		1.4.1		ADS Implementation Support TA under MOAD to facilitate implementation	NPC	MOAD	TA project	1	7,040,000		7,040,000		
	1.5			**Mechanisms established for gender equality and social and geographic inclusion**	MOAD	MOCPR						**21,500,000**	

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		1.5.1		Strengthening of the Gender Equity and Environmental Division (GEED)	MOAD		Full-time staff yrs	20	1,000,000		1,000,000		2 staff, 10 yrs
		1.5.2		Generation and maintenance of national level GESI-based and geographic inclusion-based statistics	MOAD		program funds	10	500,000		500,000		10 yr funding
		1.5.3		Establishment and strengthening of GESI staff at central department and at district level agencies	MOAD		Full-time staff yrs	80	2,400,000		2,400,000		75 district and 5 department staff; 10 yrs
		1.5.4		Enhancement of qualitative and quantitative aspects of participation of men and women farmers	MOAD		program funds	10	1,000,000		1,000,000		10 yr funding
		1.5.5		Making the agricultural extension service GESI responsive in all districts	MOAD		program funds	750	15,000,000		15,000,000		75 districts; 10 yrs
		1.5.6		Improvement in access of farmers	Farmers' Coalition	MOAD	TA project	1	500,000		500,000		Implemented by Farmer Coalition
		1.5.7		Promotion of GESI responsiveness in agricultural research	MOAD	NARC	program funds	10	1,000,000		1,000,000		10 yr funding
		1.5.8		Develop a GESI strategy	MOAD	UN Women	TA project	1	100,000		100,000		
	1.6			**Timely and effective monitoring and evaluation**	MOAD							**17,850,000**	
		1.6.1		Strengthen the capacity of Monitoring and Evaluation units of central and district level	MOAD		program funds	80	4,000,000		4,000,000		75 districts and 5 departments; 10 yrs
		1.6.2		Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation	MOAD		TA project	1	500,000		500,000		

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		1.6.3		Pilot a system to link monitoring to good governance	MOAD	AISU	program funds	1	1,000,000		1,000,000		Reward with $5000 each of 20 best peforming district offices every year
		1.6.4		Monitoring and Evaluation of Food and Nutrition Security (institutionalization of NEKSAP)	MOAD	WFP/EU	program funds	10	750,000		750,000		10 yr funding; $75,000/yr
		1.6.5		Conduct Agricultural and Livestock Census	Central Bureau of Statistics	Statistics Division, MOAD	program funds	1	10,000,000		10,000,000		
		1.6.6		Conduct joint M&E missions inlcuding GON and development partners	NPC	DDC/ VDC and DPs	program funds	20	800,000	800,000	1,600,000		twice per year, 10 years, 5 GON, 10 DP staff, plus 2 FO, 2 FNCCI
	1.7			**Mechanisms established for participation of civil society**	NPC	Farmer Organization, MOAD						**17,500,000**	
		1.7.1		Establish and maintain an ADS website both in Nepali and English	MOAD		program funds	10	250,000		250,000		10yr funding
		1.7.2		Establish an ADS Information Desk under the Policy and International Cooperation Coordination Division	MOAD		program funds	10	750,000		750,000		10yr funding
		1.7.3		Establish similar ADS information desks at regions and districts	MOAD		program funds	750	15,000,000		15,000,000		10yr funding
		1.7.4		Periodic presentation of ADS Monitoring and Evaluation Report to civil society	MOAD		program funds	750	1,500,000		1,500,000		10yr funding
	1.8			**Enhanced capacity of key institutions involved in ADS coordination and implementation**	NPC	MOAD, all other partners						**25,750,000**	
		1.8.1		Capacity needs assessment	NPC	MOAD, all other	TA project		250,000		250,000		included in TA project

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
						partners							
		1.8.2		Formulate a plan of capacity building of key institutions	NPC	MOAD, all other partners	TA project		250,000		250,000		included in TA project
		1.8.3		Implementation and monitoring of capacity building	NPC	MOAD, all other partners	program funds	10	10,000,000		10,000,000		10-year funding
			1.8.3.1	Conduct capacity building for GON institutions	NPC	MOAD, all other partners	program funds		5,000,000		5,000,000		
			1.8.3.2	Conduct capacity building for National Peasants' Coalition	NPC	MOAD, all other partners	program funds		3,000,000		3,000,000		
			1.8.3.3	Conduct capacity building for National Cooperative Federation	NPC	MOAD, all other partners			1,000,000		1,000,000		
			1.8.3.4	Conduct capacity building for Private Sector Organizations	NPC	MOAD, all other partners			1,000,000		1,000,000		
		1.8.4.		Evaluate organizational reform of MOAD and related departments	MOAD		TA project		250,000		250,000		
		1.8.5		Establish PICCD at MOAD	MOAD		program funds	10	5,000,000		5,000,000		10 year funding
	1.9			**Improved food and nutrition security of most disadvantaged groups and rights to food**	MOAD, FANUSEP Manager							**322,700,000**	
		1.9.1		Design a targeted national food and nutrition security program	FANUSEP Manager		TA Project	1	600,000		600,000		
		1.9.2		Implement a targeted food and nutrition security program	FANUSEP Manager		program funds	1	156,000,000		156,000,000	-	60% in 1st 5 years; 20% recurrent
		1.9.3		Implement NAFS Program	MOAD		program funds	1	66,000,000		66,000,000		20% recurrent
		1.9.4		Implement FNS Project	MOAD		program funds	1	90,000,000		90,000,000		20% recurrent
		1.9.5		Coordinate with ongoing food and	FANUSEP		progra	10	1,000,000		1,000,00		10 years project

Logframe Reference				Description	Responsible Institution		Resources						
Outcome	Output	Action							Costs USD				
									Source				Comments
					Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
				nutrition security projects	Manager		m funds				0		management
		1.9.6		Review of NAFSP, FNSP, and other food and nutrition security projects	FANUSEP Manager		TA Project	1	600,000		600,000		
		1.9.7		Strengthen the capacity of the central and district food security coordination mechanisms	FANUSEP Manager		program funds	1	8,000,000		8,000,000		10 years, central and 70 districts
		1.9.8		Promote formulation of Rights to Food and Food Sovereignty Legislation and monitor their implementation	FANUSEP Manager		program funds	1	500,000		500,000		5 year program
	1.10			**Performance-based management system with rewards to the performers established**	MOAD						-	**8,500,000**	
		1.10.1		Establish guidelines and standard operating procedures	MOAD		TA Project	1	500,000		500,000		
		1.10.2		Conduct a pilot program on performance-based management system	MOAD		Pilot project		7,500,000		7,500,000		pilot in 15 districts
		1.10.3		Evaluate the pilot and make recommendations	MOAD		TA Project		500,000		500,000		

Logframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
2				**Higher productivity**					**1,821,820,000**	**139,825,000**		**1,961,645,000**	
	2.1			**A decentralized extension system responsive to farmers and agroenterprises' needs**	DESTEP Manager	DOA, DOLS, CAESC						**507,760,000**	
		2.1.1		Establish Community Agricultural Extension Service Centers	DESTEP Manager	DOA, DOLS, CAESC							
			2.1.1.1	Formulate general guidelines for CAESC	DESTEP Manager	DOA, DOLS, CAESC	TA international person month	3	60,000	-	60,000		
			2.1.1.2	Awareness campaign about the initiative	DESTEP Manager	DOA, DOLS, CAESC	campaign	4,000	2,000,000		2,000,000		Campaigns in 4000 VDC
			2.1.1.3	Capacity building to support establishment of the CAESC	DESTEP Manager	DOA, DOLS, CAESC	training course	160	320,000		320,000		Each training course is 25 persons; 1 person per VDC; 4000 VDC
			2.1.1.4	Seed money for establishment of CAESC	DESTEP Manager	DOA, DOLS, CAESC	match grant	4,000	20,000,000	20,000,000	40,000,000		$10,000 per CAESC 50:50 financing
			2.1.1.5	Training of CAESC extension technician	DESTEP Manager	DOA, DOLS, CAESC	training course	640	1,280,000		1,280,000		4 trainings each VDC, 25 person/course 4000 VDC
			2.1.1.6	Technical backstopping of CAESC	DESTEP Manager	DOA, DOLS, CAESC	technician visit	160,000	16,000,000		16,000,000		4 visits/yr, 4000 VDC
			2.1.1.7	External monitoring of CAESC	DESTEP Manager	DOA, DOLS, CAESC	technician visit	160,000	16,000,000		16,000,000		4 visits/yr, 4000 VDC
		2.1.2		Strengthen capacity of agriculture and livestock service centers and sub-centers	DESTEP Manager	DOA, DOLS, CAESC					-		
			2.1.2.1	Training, workshops, study tours for technicians	DESTEP Manager	DOA, DOLS, CAESC	training course	10,000	20,000,000		20,000,000		5000 JTA, 50 training courses, 25 person/course
			2.1.2.2	Resources for farm demonstrations and farmer training	DESTEP Manager	DOA, DOLS, CAESC	farm demo	160,000	320,000,000		320,000,000		4 farm demo/ yr/VDC

Logframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
			2.1.2.3	Improve infrastructure and equipment at agriculture and livestock centers and sub-centers	DESTEP Manager	DOA, DOLS, CAESC	Infrastructure & equipment	1,400	48,000,000		48,000,000		1,400 centers/ sub-centers A $20,000 each, $20 million for MOAD and Departments over 10 years
		2.1.3		Establish voucher system for extension and advisory services	DESTEP Manager	DOA, DOLS, CAESC					-		
			2.1.3.1	Design, implement and evaluate a pilot voucher scheme	DESTEP Manager	DOA, DOLS, CAESC	TA project	1	500,000		500,000		
			2.1.3.2	Provide budget for 50,000 vouchers in the pilot scheme	DESTEP Manager	DOA, DOLS, CAESC	Vouchers	50,000	2,500,000		2,500,000		50,000 farmer vouchers, $50 each
		2.1.4		Introduce farmer marketing schools	DESTEP Manager	DOA, DOLS, CAESC					-		1 FMS per 4000 VDC
			2.1.4.1	Establish program capacity and training of trainers	DESTEP Manager	DOA, DOLS, CAESC	TA project	1	500,000		500,000		5 persons trained per district
			2.1.4.2	Implement FMS in those VDC prioritized for value chain development	DESTEP Manager	DOA, DOLS, CAESC	FMS, FFS	1,000	5,000,000		5,000,000		Field school is 10 persons, meets 10 x yr
		2.1.5		Promote ICT in agricultural extension	DESTEP Manager	DOA, DOLS, CAESC					-		
			2.1.5.1	Provide PCs or tablet with internet for each CAESC	DESTEP Manager	DOA, DOLS, CAESC	PCs with internet	4,000	2,000,000		2,000,000		
			2.1.5.2	Mobile-based applications	DESTEP Manager	DOA, DOLS, CAESC	PP program 50:50	10	250,000	250,000	500,000		$50,000 cost for each application, 50% finance by govt
		2.1.6		Link farmer groups and organizations to banks and finance institutions	DESTEP Manager	DOA, DOLS, CAESC	program	75	1,500,000		1,500,000		20 farmers in each group, 100 groups per district in each program
		2.1.7		Train field personnel to be sensitized to GESI and nutrition	DESTEP Manager	DOA, DOLS, CAESC					-		
			2.1.7.1	Training in GESI and nutrition	DESTEP Manager	DOA, DOLS, CAESC	training course	800	1,600,000		1,600,000		5 persons trained per VDC, 25 per

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
												course
		2.1.7.2	Increase the representation of women in JTAs	DESTEP Manager	DOA, DOLS, CAESC	JT salary	60,000	30,000,000		30,000,000		500 additional women JT, 10 years salary
	2.2		**Decentralized research system responsive to farmers and agroenterprises' needs**	DESTEP Manager						-	**102,620,000**	
	2.2.1		Restructure NARC as apex of NARS, with NRI and RARS implementing research, training under NARC	DESTEP Manager	NARC	Director person month	6	30,000		30,000		
		2.2.1.1	Establish NARF, merge with NARDEF, integrate with NARC	DESTEP Manager	NARC	Fund start-up	1	100,000,000		100,000,000		start up fund as grant
		2.2.1.2	Finalize NARC Vision 2011-30 consistent with ADS	DESTEP Manager	NARC	TA national person month	3	30,000		30,000		
		2.2.1.3	Establish NRI for Horticulture, Animal Health, and Aquaculture and Fisheries	DESTEP Manager	NARC	Buildings & operation	3	750,000		750,000		2,500,000 per NRI
		2.2.1.4	Establish RARS in high hills, mid hills, terai of FWDR	DESTEP Manager	NARC	Buildings & operation	3	750,000		750,000		
		2.2.1.5	Establish Agricultural Mechanization Centers in terai (2), mid hills (1), and high hills (1) within existing research centers	DESTEP Manager	NARC	Buildings & operation	4	1,000,000		1,000,000		
		2.2.1.6	Consolidate and restructure RARS and programs to avoid duplication	DESTEP Manager	NARC	Director person month	6	30,000		30,000		
	2.2.2		Strengthen linkages within the research-educational-extension triangle	DESTEP Manager	NARC, Edu. Inst.	Director person month	6	30,000		30,000		
	2.3		**A strengthened agricultural education system**	DESTEP Manager	University					-	**51,550,000**	
	2.3.1		Improve facilities and capacity of Agricultural University	DESTEP Manager	University	Buildings & operation	1	1,250,000		1,250,000		over 5 years
	2.3.2		Establish new Departments in Agriculture and Forestry University	DESTEP Manager	University			-		-		administration and facilities included
		2.3.2.1	Establish Agribusiness Department	DESTEP Manag	University	program funds	10	5,000,000		5,000,0		10 year funding

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
				er						00		
		2.3.2.2	Establish Technology Dissemination Department	DESTEP Manager	University	program funds	10	12,500,000		12,500,000		10 year funding
	2.3.3		Support for joint educational and research programs	DESTEP Manager	University	program funds	50	1,000,000		1,000,000		
	2.3.4		Establish Agricultural University partner operations with private sector	DESTEP Manager	University	PP program 50:50	50	1,250,000	1,250,000	2,500,000		5 programs per yr over 10 yrs
	2.3.5		Establish new agricultural/veterinary science colleges in other regions	DESTEP Manager	University	Buildings & operation	5	1,250,000		1,250,000		
	2.3.6		Strengthen capacity of CTEVT	DESTEP Manager	University	TOT	100	50,000		50,000		Centers for technical education and vocational training
	2.3.7		Strengthen capacity of professional staff from government, educational system, and private sector through overseas degrees and training.	DESTEP Manager	University	Scholarship	10	18,000,000		18,000,000		30 short term training and 15 long-term training (Master degree/PhD) per year
	2.3.8		Mainstream food and nutrition security into existing agricultural education system	DESTEP Manager	Universities, colleges, vocational schools	program funds	10	10,000,000		10,000,000		10 year funding
2.4			**A farming sector composed of adequately sized farms that use land efficiently and sustainably**	MLRM	NPC, MLJ, MOAD					-	**32,525,000**	
	2.4.1		Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform	MLRM	NPC, MLJ, MOAD	Official person month	1	5,000		5,000		
	2.4.2		Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office	MLRM	NPC, MLJ, MOAD	admin national	1	100,000		100,000		
	2.4.3		Establish land tribunals to settle tenancy and dual ownership cases	MLRM	MLJ	admin District	75	1,500,000		1,500,000		in each district
	2.4.4		Set and enforce targets for reduction of land holdings to the permitted ceiling	MLRM	MLJ	admin District	75	1,500,000		1,500,000		in each district

Logframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
		2.4.5		Introduce regulation, incentives and disincentives to promote owner-operated farms, farming cooperatives and agribusiness farms.	MLRM	MOF, MLJ	Official person month	24	120,000		120,000		
		2.4.6		Pilot a “Land leasing corporation" scheme	MLRM	MOF, MLJ	pilot scheme	1	1,000,000		1,000,000		
		2.4.7		Reduce land fragmentation	MLRM	MOF, MLJ							
			2.4.4.1	Legal measures	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		
			2.4.4.2	Financial and tax incentives	MLRM	MOF, MLJ	incentive package	1	1,000,000		1,000,000		
		2.4.8		Enact contract farming act to promote agri-business operations	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		
		2.4.9		Enact a Land Lease Act (could be part of Contract Farming Act) allowing long-term leasing at fair terms without acquisition of tenancy rights	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		
		2.4.10		Implement land zoning policy	MLRM	MOF, MLJ	Official person month	24	120,000		120,000		
		2.4.11		Identify degraded land for rehabilitation	MLRM	MOFSC, MOAD	TA project and program funds	10	25,000,000		25,000,000		Geographic information system (GIS)
		2.4.12		Raise awarenss of women's rights to land	MLRM	MOAD	campaign	4,000	2,000,000		2,000,000		1 campaign in each VDC
	2.5			**Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.**	MOI	MOAD, WUA					-	**690,200,000**	
		2.5.1		Expand irrigation area by most feasible means	MOI	MOAD							
			2.5.1.1	Complete already commenced surface schemes	MOI	MOAD	funds per ha	80,000	320,000,000		320,000,000		$4000/ha estimated
			2.5.1.2	Pilot construction of medium pond/ recharge basins	MOI	GRWRDB, MOAD, farmers	pilot scheme	1	1,000,000		1,000,000		
			2.5.1.3	Repair damaged surface schemes	MOI	Farmers	project complex	34,000	34,000,000		34,000,000		$1,000/ha
			2.5.1.4	Repair damaged tubewells	MOI	Farmers	project small	34,000	3,400,000		3,400,000		$100/ha

Logframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
			2.5.1.5	Construct new tubewells	MOI	farmers	project complex	75,000	18,750,000	18,750,000	37,500,000		$500/ha cost shared by farmers
			2.5.1.6	Develop non-conventional irrigation	MOI	farmers, private sector	pilot scheme	10	5,000,000	5,000,000	10,000,000		10 district pilots each covering 500 ha
		2.5.2		Increase effective area of existing schemes	MOI	WUA	works & training	170,000	34,000,000	34,000,000	68,000,000		$400/ha cost shared by farmers
		2.5.3		Increase irrigation intensity	MOI	MOFSC, MOEnergy					-		
			2.5.3.1	Improve catchment management	MOI	MOFSC	reforestation pilot schemes	10	8,000,000	2,000,000	10,000,000		20% community contribution
			2.5.3.2	Construct inter-basin transfers	MOI	MOEnergy	works	7	28,000,000		28,000,000		Each scheme estimated cost $4 million
		2.5.4		Improve irrigation system and on-farm water management	MOI						-		
			2.5.4.1	Reform and strengthen Irrigation Management Division to become the Department of Irrigation Development	MOI		admin national	1	100,000		100,000		
			2.5.4.2	Provide adequate budget from government or ISF collection	MOI	MOF	annual operating budget	50,000	25,000,000	25,000,000	50,000,000		5,000 schemes, 10 yrs budget of $1,000 per yr, 50% cost share
			2.5.4.3	Build capacity of WUA and farmers	MOI		on-farm training course	15,000	30,000,000		30,000,000		15,000 WUA; $1,000 per training course
		2.5.5		Implement irrigation management system transfer	MOI	WUA	admin national	32	3,200,000		3,200,000		32 schemes
		2.5.6		Establish funding for O&M, strengthen ISF	MOI	WUA	admin costs	15,000	15,000,000		15,000,000		Cost for WUA administrative reform
		2.5.7		Implement integrated water resource management	MOI	MOLRM	project	5	5,000,000		5,000,000		
		2.5.8		Build capacity of women farmers	MOI	MOAD	FFS	15,000	75,000,000		75,000,000		10 women per 1 farmer field school per WUA

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
	2.6		**Timely access to quality agricultural inputs at affordable price.**							-	**600,000**	
		2.6.1	Formulate consistent policy	MOAD	NPC, MOF, MOSC	admin national	1	100,000		100,000		
		2.6.2	Establish a voucher system for inputs	MOAD	MOF	TA project	1	500,000		500,000		
	2.7		**Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.**	MOAD	private sector					-	**12,900,000**	
		2.7.1	Enhance capacity of seed research stations	MOAD	private sector, university	research station	10	2,500,000		2,500,000		
		2.7.2	Promote private, cooperative, community based seed production	MOAD	private, cooperative	PP program 50:50	600	3,000,000	3,000,000	6,000,000		10 programs per district, $8,000 each, 50% cost share
		2.7.3	Enforce quality assurance systems	MOAD	Private	TA project	1	500,000		500,000		
		2.7.4	Promote production of hybrids	MOAD	Private	PP program 50:50	15	375,000	375,000	750,000		Production in 3 zones of 5 regions; 50% cost share
		2.7.5	Establish an information system on seed demand and supply	MOAD	Private	program funds	10	200,000	200,000	400,000		10 years; 50% cost share
		2.7.6	Implement Biodiversity Policy	MOAD	MOEnv	TA project	1	500,000		500,000		
		2.7.7	Pilot voucher system for seeds	MOAD	MOF	budget	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, $25 voucher/person
		2.7.8	Promote open pollinated, improved and local seed production system to address seed sovereignty	MOAD	Cooperative, Private	PP Program	150	75,000	75,000	150,000		
	2.8		**A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.**							-	**458,250,000**	
		2.8.1	Maintain fertilizer subsidy	MOAD	MOF	budget	10	400,000,000		400,000,000		subsidy based on 2012 govt budget; 10

Logframe Reference			Description	Responsible Institution		Resources						
Outcome	Output	Action						Costs USD				
								Source				
				Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
												yrs
	2.8.2		Complimentary measures for efficient fertilizer use	MOAD	private					-		
		2.8.2.1	Demonstration and awareness campaign			farm demo	4,000	6,000,000	2,000,000	8,000,000		25% private sector contribution
		2.8.2.2	Promote organic and biofertilizer			FFS	4,000	6,000,000	2,000,000	8,000,000		25% private sector contribution
		2.8.2.3	Conduct feasibility studies on fertiliser production and procurement	MOAD	MOCS	TA project	2	1,000,000		1,000,000		
		2.8.2.4	Establish a fertilizer buffer stock	MOAD	MOCS	PP program 50:50	75	18,750,000	18,750,000	37,500,000		50% private sector contribution
		2.8.2.5	Establish a database and monitoring system on fertilizer	MOAD	MOCS	program funds	75	1,125,000	375,000	1,500,000		25% private sector contribution
		2.8.2.6	Voucher system for fertilizer	MOAD	MOF	voucher pilot fert subsidy	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, $25 voucher/person
		2.8.2.7	Enforce quality assurance systems	MOAD	private	program	75	1,500,000		1,500,000		
	2.9		**A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.**	MOAD	private, cooperative					-	**8,350,000**	
	2.9.1		Develop livestock breeding policy	MOAD		admin national	1	100,000		100,000		
	2.9.2		Capacity building for improved breeds production	MOAD	private	programs	5	1,875,000	625,000	2,500,000		75% govt, 25% private contribution
	2.9.3		Establish a voucher system for animal breeds	MOAD	MOF	voucher pilot animal breeds	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, $25 voucher/person
	2.9.4		PPP program for availability of liquid nitrogen	MOAD		PP program 50:50	1	2,500,000	2,500,000	5,000,000		
	2.10		**A range of mechanization options accessible to farmers through the private sector.**	MOAD	MOF, MOCS, private sector					-	**13,540,000**	
	2.10		Information dissemination	MOAD	Private	campaig						50% private

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
		.1				n	4,000	1,000,000	1,000,000	2,000,000		sector contribution
	2.10	.2	Improve customer access to finance	MOAD	NRB, private sector	Official person month	2	10,000		10,000		
	2.10	.3	Capacity building for service and maintenance providers	MOAD	Private	programs	75	750,000	750,000	1,500,000		10 service providers per district; 50% private sector contribution
	2.10	.4	Enable the business environment for leasing agricultural equipment	MOAD	NRB, MOSC, private sector	Official person month	6	30,000		30,000		
	2.10	.5	Revise regulation and taxes to support mechanization	MOAD	MOF, NRB	tax incentives package	4	4,000,000		4,000,000		4 measures; cost is revenue forgone
	2.10	.6	Pilot a voucher scheme	MOAD	MOF, MOT	voucher pilot mechanization	30,000	6,000,000		6,000,000		Pilot 400 farmers per 75 districts, $200 voucher/person
2.	11		**Improved resilience of farmers to climate change, disasters, price volatility and other shocks.**	MOAD	MOEnv					-	**36,000,000**	
	2.11	.1	Research on stress tolerant varieties and breeds	MOAD		program funds	200	4,000,000		4,000,000		
	2.11	.2	Early warning system	MOEnv	MOAD	project	1	1,000,000		1,000,000		
	2.11	.3	Climate information and weather indexation systems	MOAD	Dept Meteorology	project	1	5,000,000		5,000,000		
	2.11	.4	Pilot a Farmers Welfare Fund	MOAD	MOF, MPRC	pilot funds	1	1,000,000		1,000,000		
	2.11	.5	Promote agricultural insurance							-		details in Commercialization
	2.11	.6	Strengthen food reserve system	MOAD	MOF, MPRC	project	1	5,000,000		5,000,000		
	2.11	.7	Strengthen the seed and feed/fodder reserve system	MOAD	FO	program funds	10	5,000,000		5,000,000		
	2.11	.8	Improve capacity of extension staff and farmers in climate smart agricultural practices	MOAD		program funds	10	5,000,000		5,000,000		

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
		2.11.9	Establish a fund for preparedness and response	MOAD	MOF	Fund grant	1	10,000,000		10,000,000		
	2.12		**Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.**	MOAD	private					-	**5,500,000**	
		2.12.1	Formulate standards	MOAD		TA project	1	500,000		500,000		
		2.12.2	Extension programs with private sector	MOAD	private	project	1	3,750,000	1,250,000	5,000,000		25% private sector contribution
	2.13		**Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.**	MOFSC	MOAD, MOEnv, private sector					-	**41,850,000**	
		2.13.1	Strengthen enabling policy environment	MOFSC		TA project	1	500,000		500,000		
		2.13.2	Develop and integrate land use models with forestry	MOFSC		project	1	5,000,000		5,000,000		national project
		2.13.3	Forestry enterprises and marketing development	MOFSC	private	TA project	1	500,000		500,000		
		2.13.4	Enhance forestry GESI	MOFSC		program	750	15,000,000		15,000,000		10 programs per district, $20,000 each
		2.13.5	Biodiversity conservation and climate change adaptation	MOFSC		program	750	18,750,000		18,750,000		10 programs per district, $25,000 each
		2.13.6	Develop institutional and human resources	MOFSC		admin national	1	100,000		100,000		
		2.13.7	Research and extension for sustainable forestry	MOFSC		program funds	75	1,500,000		1,500,000		district programs
		2.13.8	Develop a forestry investment strategy and plan	MOFSC		TA project	1	250,000		250,000		
		2.13.9	Develop a joint platform for policy	MOFSC		TA project	1	250,000		250,000		

ogframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				Comments
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
3				**Profitable commercialization**					**613,141,250**	**378,451,250**		**991,592,500**	
	3.1			**Improved investment climate for agricultural commercialization**	MOAD	MOF						**1,920,000**	
		3.1.1		Promote formation of broad-based commercial agriculture organizations			pilot scheme	15	1,125,000	375,000	1,500,000		$100,000 each; cost sharing 75%:25%
		3.1.2		Increase participation of agribusiness, cooperatives and industry bodies			program	10	200,000		200,000		
		3.1.3		Promulgate appropriate regulations			program	3	60,000		60,000		
		3.1.4		Level the competitive environment between private sector and state enterprises			Official person month	12	60,000		60,000		
		3.1.5		Reform land use policy to stimulate commercial agriculture	MOAD	MOLRM					-		costs under Output 2.4 Land
		3.1.6		Provide information to assist commercial farming decisions	MOAD		admin national	1	100,000		100,000		
	3.2			**Contract arrangements for commercial agriculture**	MOAD	MOSC, MOLRM					-	**8,060,000**	
		3.2.1		Strengthen contractual arrangement mechanisms	MOAD	MOSC	Official person month	12	60,000		60,000		
		3.2.2		Capacity building in commercial agriculture	MOAD	private sector, farmer organizations	training courses at VDC	4,000	8,000,000		8,000,000		5 farmer groups per VDC, 5 groups per training
	3.3			**Tax policy that supports an efficient commercial agriculture sector**	MOF	MOAD, NRB	Official person month	12	60,000		60,000	**60,000**	
	3.4			**A variety of competitive and demand-driven financial and agricultural insurance products.**	NRB	MOAD, MOF, Insurance Board, Banks						**3,132,500**	
		3.4.1		Promote development of agricultural finance and insurance providers	NRB	MOAD, MOF, Insurance Board, Banks							
			3.4.1.1	Provide long-term finance through leasing			Official person month	12	60,000		60,000		
			3.4.1.2	Implement policy to divest government shareholding and management influence in financial institutions			Official person month	12	60,000		60,000		

ogframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		3.4.1.3	Promote financial institution viability			Official person month	12	60,000		60,000		
		3.4.1.4	Facilitate development of a range of financial products for agriculture			PP program 50:50	10	250,000	250,000	500,000		
		3.4.1.5	Provide incentives for agricultural finance			incentives package	1	1,000,000		1,000,000		Incentives equivalent to $5 per loan (>0.5% of average loan amount); loan amount not costed
		3.4.1.6	Provide training in financial management for farmers									Cost included in 3.2.2 above
	3.4.2		Promote development of agricultural insurance	Insurance Board	MOAD, MOF, Banks							
		3.4.2.1	Support the insurance industry in implementing the Agricultural Insurance Directive			Official person month	10	20,000	20,000	40,000		
		3.4.2.2	Promotion campaign to farmers			campaign	1,000	125,000	375,000	500,000		25% govt: 75% insurer contribution
		3.4.2.3	Pilot a local-level weather indexing scheme			TA project	1	450,000	50,000	500,000		10% insurer and farmer contribution
		3.4.2.4	Strengthen technical capacity of MOAD for regional and local level crop forecasting									cost included in TA project above
		3.4.2.5	Pilot scheme for 50% premium subsidy			pilot scheme	5,500	206,250	206,250	412,500		Premium 5% of insured value ($500 nominal insured value); 3 yrs pilot
	3.5		**Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises**	VADEP Program Manager	VCDAs						**765,550,000**	

ogframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		3.5.1	Establish prioritized National Value Chain Programs	VADEP Program Manager	VCDAs	TA project	1	500,000	50,000	550,000		10% private sector contribution
		3.5.2	Support to better expedite value chain development	VADEP Program Manager	VCDAs	Project	1	13,500,000	1,500,000	15,000,000		10% private sector contribution
		3.5.3	3.5.3.1 Enhance the development of prioritized value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.3.2 Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	45,000,000	30,000,000	75,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.4	3.5.4.1 Enhance development of the prioritized value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.4.2 Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	72,000,000	48,000,000	120,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.5	3.5.5.1 Enhance development of the prioritized value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.5.2 Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	78,000,000	52,000,000	130,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure

ogframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		3.5.6	3.5.6.1 Enhance development of the prioritized value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.6.2 Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	210,000,000	140,000,000	350,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.7	3.5.7.1 Enhance development of the prioritized value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.7.2 Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	30,000,000	20,000,000	50,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
	3.6		**Rural roads network expanded**	MOAD	DOLIDAR, community, private						**132,770,000**	50km/district, initial project
		3.6.1	Update policy for rural roads to explicitly target agricultural roads.			Official person month	4	20,000		20,000		
		3.6.2	Establish a new section for agricultural roads in District Technical Office			admin district	75	1,500,000		1,500,000		
		3.6.3	Provide separate funding for development and maintenance of agricultural roads.			matching grant fund	1	65,625,000	65,625,000	131,250,000		$35,000/km; 50% cost sharing
	3.7		**Agricultural market information and ITC products for market intelligence.**	MOAD	private sector, coop						**5,000,000**	
		3.7.1	Promote development of a suite of products for market information and market intelligence			matching grant fund	1	2,500,000	2,500,000	5,000,000		50% contributions
	3.8		**Expanded rural electrification and renewable energies**	MOAD	NEA, private, community						**75,100,000**	

ogframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		3.8.1	Establish a separate liaison section especially for power development in MOAD			admin national	1	100,000		100,000		
		3.8.2	Establish a fund to support PPP for power development with farming community			matching grant fund	1	60,000,000	15,000,000	75,000,000		CBRE applies 80% govt, 20% community contribution

Logframe Reference				Description	Responsible Institution		Resources						
									Costs USD				
									Source				Comments
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
4				**Increased competitiveness**					**333,052,368**	**80,375,000**		**413,427,368**	
	4.1			**Market infrastructure developed**	MOAD	DOLIDAR						**79,600,000**	
		4.1.1		Promote development of market infrastructure	MOAD	DOLIDAR, private sector	fund, matching investment	750	37,500,000	37,500,000	75,000,000		50% govt contribution; 10 units of infrastructure per district; Compliments Value Chain fund.
		4.1.2		Implement PPP financing support mechanisms	MOAD	MOF	program funds	20	100,000		100,000		
		4.1.3		Capacity building programs for market infrastructure management	MOAD	DOLIDAR, private sector	training course	750	1,125,000	375,000	1,500,000		75% govt contribution; 75 districts, 10 years
		4.1.4		Identify strategic locations for market development and undertake feasibility studies.	MOAD	DOLIDAR private sector	program funds	10	2,000,000		2,000,000		75 districts, 10 years
		4.1.5		Develop rules and regulations and SOP for improved market management.	MOAD	private sector	program funds	10	1,000,000		1,000,000		
	4.2			**Growth of innovative small and medium agribusiness enterprises**	INAGEP Program Manager							**205,100,000**	
		4.2.1		Adopt tax incentives to stimulate investment in agro-based enterprises			Official person month	20	100,000		100,000		Tax revenue forgone not costed

Logframe Reference				Description	Responsible Institution		Resources							
									Costs USD					
									Source					Comments
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total		
		4.2.2		Promote establishment of Agribusiness Incubators			pilot scheme	5	10,000,000		10,000,000			compliments value chain activity
		4.2.3		Establish matching grants to promote agro-enterprise innovation										
			4.2.3.1	Innovation Fund for Agro-enterprises and Coops			program fund	1	52,500,000	17,500,000	70,000,000			75% govt contribution
			4.2.3.2	Agro-Entrepreneurship Programs for (i) youth, (ii) women, (iii) disadvantaged groups, (iv) disadvantaged regions			program fund	4	100,000,000	25,000,000	125,000,000			80% govt contribution
	4.3			**Growth of food and agricultural products exports**								**5,280,000**		
		4.3.1		Strengthen capacity to promote exports and negotiate more favorable trade agreements	MOAD	MOSC, Investment Board								
			4.3.1.1	Legislative Measures	MOAD	TEPC	Official person month	12	60,000		60,000			
			4.3.1.2	Promote foreign investment	MOAD	Investment Board	Official person month	24	120,000		120,000			
			4.3.1.3	Institutional Measures	MOAD	DFTQC	amin national	1	100,000		100,000			
			4.3.1.4	International Measures	MOAD	MOSC	program fund	1	5,000,000		5,000,000			$50,000 for 10yrs
	4.4			**Enhanced food quality and safety**	MOAD							**123,447,368**		
		4.4.1		Adopt and implement internationally compatible food quality and safety standards	MOAD									

Logframe Reference			Description	Responsible Institution		Resources						
								Costs USD				
								Source				Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	
		4.4.1.1	Legislative Measures for a modern Food Act	MOAD		program funds	1	250,000		250,000		
		4.4.1.2	Formulation and promulgation of food safety and quality standards	MOAD	private sector, consumer groups	program funds	1	250,000		250,000		
		4.4.1.3	Adopt legistation on accreditation of standards certification bodies	MOAD		program funds	1	250,000		250,000		
		4.4.1.4	Adopt legislation on accreditation of national laboratories for FSQ certification	MOAD		program funds	1	250,000		250,000		
		4.4.1.5	Strengthen and upgrade laboratiories to international accreditation	MOAD		program funds	10	25,000,000		25,000,000		
		4.4.1.6	Institutional measures to strengthen capacity and clarify roles (short term)	MOAD		program funds	5	2,500,000		2,500,000		
		4.4.1.7	Establish regional laboratories and district offices for DFTQC	MOAD		program funds	75	41,447,368		41,447,368		
		4.4.1.8	Form Food Agency with authority under Food Act (medium term)	MOAD		program funds	5	7,500,000		7,500,000		
		4.4.1.9	Establish capacity for pest risk assessment, SPS management and surveillance	MOAD		program funds	10	15,000,000		15,000,000		
		4.4.1.10	Adopt *One Health Approach* and strenghten	MOAD		program funds	10	30,000,000		30,000,000		

Logframe Reference				Description	Responsible Institution		Resources							
									Costs USD					
									Source					Comments
Outcome	Output	Action			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total		
				animal health surveillance, diagnostic, and reponse capacity										
			4.4.1.11	Coordination and reporting to subcommittee on FNS and Food Safety of the NADSCC	MOAD		program funds	10	1,000,000		1,000,000			

APPENDIX 6.
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Agriculture Development Strategy

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18	Dr. Durga Mani Gautam	Rector	Agriculture and Forest University
19	Dr. Sunder Man Shrestha	Dean	Agriculture and Forest University
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21	Dr. Hari Dahal	Former Secretary	Government of Nepal
22	Dr. Ganesh Raj Joshi	Former Secretary	Government of Nepal
23	Mr. Nathu Prasad Chaudhary	Former Secretary	Government of Nepal
24	Mr. Govinda Prasad Pandey	Former Secretary	Government of Nepal
25	Dr. Shree Kanta Adhikari	Former Secretary	Government of Nepal
26	Dr. Akrur Narsingha Rana	Former Secretary	Government of Nepal
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28	Dr. Tika Bahadur Karki	Former DG	DFTQC
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30	Dr. Bharat Prasad Upadhaya	Former DG	Department of Agriculture

Agriculture Development Strategy
Members of Different Thematic Group

1. Thematic Group: Agribusiness and Commercialization

S.N.	Members Name	Designation	Office Address
1	Mr. Yogendra Kumar Karki	Project Director	PACT
2	Mr. Gagendra Maharjan	Managing Director	NAF Pvt. Ltd
3	Mr. Kumud Dugar	President	Association of Nepalese Rice, oil and Pulse Industry
4	Dr. Til Chandra Bhattarai	President	Nepal Feed Industries Association
5	Mr. Rajesh Bhattarai	Representatives	Cold Storage Association
6	Mr. Nava Raj Sharma	Preesident	Veterinary Chemist and Druggist Association
7	Mr. Babu Ram Acharya	Manager	National Co-operative Federation of Nepal
8	Mr. Keshav Premi	Program Director	Directorate of Livestock Marketing, DoLS
9	Mr. Tulasi Gautam	Chief	Market Research and Statistics Mgmt, DoA
10	Ms. Shavanam Shivakoti	Sr. Plant Prot. Officer	Ministry of Agricultural Development
11	Dr. Surya Prasad Poudel	Sr. Livestock Devt. Officer	Ministry of Agricultural Development

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3	Mr. Suroj Pokherel	Program Director	Crop Development Directorate, DoA
4	Ms. Puja Pandey	Nutritionist	Helen Keler International
5	Dr. Krishna Pahari	Food Security Advisor	WFP Nepal
6	Mr. Jyoti Baniya	President	Consumer Protection Forum
7	Mr. Biju Shrestha	Program Director	Agri/Rural Devt. Division, NPC
8	Mr. Raj Kumar Pokherel	Nutritionist	Nutrition Division, MoHP
9	Mr. Hem Raj Regmi	Sr. Statistical officer	Ministry of Agricultural Development
10	Mr. Gehendra Gurung	Food Security Expert	Practical Action, Nepal
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5	Ms. Niru Dahal	Sr. Agronomist	Department of Agriculture
6	Ms. Dharma Dutta Baral	DDG	Department of Agriculture
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4	Mr. Rajendra Ghimire	President	Napal Large Cadomoom Association
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5	Mr. Sanju Upadhyaya	Sr. Divisional Engineer	Department of Irrigation
6	Mr. Khila N. Dahal	Sr. Divisional Engineer	Department of Irrigation
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11. Thematic Group: Rural Finance, Insurance and Credit

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Regional workshop on Agriculture Development Strategy

Nepalgung (2069/3/22)

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11	Bidesani Tharu	Dictrict member	Farmer Association, Banke
12	Maheshwor Gahatraj	Secretary	Tharuwan State Committee
13	Kali Bahadur Malla	CC Member	United Maoist
14	Lila Kumar GC	CC Member	CPN-ML
15	Mun Bahadur Karki	State Committee Member	United Maoist
16	Dhurga Bahadur Raut	District Secretary	United Maoist
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18	Ganesh Chand	Secretary	Nepali Congress, Saly
19	Thagendra Prasad Puri	Chief	CPN-UML, Rhukum
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21	Mahamad Kar Kha	Member	Phekophan Kendra
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23	Manab Sejwal	President	Nepali Congress, Jum
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57	Prem Kharel		Surkhet
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112	Jeevan kumar K.C	Planning officer	District agriculture office Banke
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ADS Regional Workshop
Dhangadhi (2069/03/20)

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84	Mr. Narayan Dutt Bhatta	Member	Nepali Congress, Kailali
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ADS Regional Workshop
Hetauda, Makwanpur (2069/05/18)

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4	Shambhu Prasad Pandey	Treasurer	National Peasants' Coalition
5	Dr. Prem Dangal	Member	National Peasants' Coalition
6	Dilli Ram Sharma	Regional Director	Regional Agricultural Directorate, Harihabhawan
7	Dr. Purushottam Mainaly	Deputy Team Leader	ADS TA Team
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10	Balkrishna Adhikary	Journalist	Kantipur Television
11	Nabin Sigdel	Journalist	Hetauda Today
12	Deepak Prasad Poudel	Member, Kavre	Nepal Farmers Association
13	Rana Bahadur Bohora	General Secretary, Kavre	National Peasants' Coalition
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15	Mahendra Raj Tiwari	Central Committee Member	Nepal Farmers Association
16	Achyut Prasad Mishra	Central Committee Member	Nepal Farmers Association
17	Shambhu Prasad Lamichhane	Central Committee Member	All Nepal Peasants' Federation
18	Bimala Karki	central Committee Member	All Nepal Peasants' Federation
19	Bishnu Bahadur Khatri	District Committee Member	CPNML, Kathmandu

20	Shanta Neupane	Central Committee Member	All Nepal Peasants' Federation (Revolutionary)
21	Mangala Timilsina	Central Committee Member	All Nepal Peasants' Federation (Revolutionary)
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24	Ram Prasad Dahal	Central Committee Member	All Nepal Peasants' Federation
25	Krishna Bahadur Karki	Member	All Nepal Peasants' Federation
26	Devi Bahadur Thapa	Member	All Nepal Peasants' Federation
27	Keshav Baral	Member	All Nepal Peasants' Federation
28	Ram Hari Subedi	Member	All Nepal Peasants' Federation
29	Ram Ekwal Mukhiya	Member	All Nepal Peasants' Federation
30	Amrit Kumar Shrestha	Member	Nepal Farmers Association
31	Surya Bilash Devkota	Member	Nepal Farmers Association
32	Ganesh Timilsina	Member	Nepal Farmers Association
33	Khadananda Sharma	Under Secretary	DFO, Makwanpur
34	Govinda Karki		Ramechhap
35	Dr. Anjan Punarchalise		Kathmandu
36	Jamuna Prasad Shah		Sindhuli
37	Geeta Shah		Dhanusha
38	Hema Mishra		Mahottari
39	Laba Shree Neupane	Member	Nepal Farmers Association
40	Nahendra Khadka	Central Secretariate Member	National Peasants' Coalition
41	Bhim Pariyar	Cooperative Officer	Divisional Cooperative Office, Makwanpur
42	Hari Krishna	Vice President	CPNUML, Kathmandu
43	Shonam Singh-Shyangtan	Coordinator	UNCP Maiost
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45	Nabaraj Luitel	Member	All Nepal Peasants' Federation (Revolutionary)

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50	Mr. Ram Narayan Singh	Member	Rautahat
51	Mr. Shiva Prasad Humagain	President	Nepali Congress, Kavre
52	Mr. Mahendra Prasad		District Agriculture Development Office, Bara
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57	Mr. Dinesh Thapa	Member	All Nepal Peasants' Federation (Revolutionary), Sarlahi
58	Dr. Samrat Tumbahamphe		
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62	Mr. Janardan Poudel	Member	Nepal Farmers Federation, Makwanpur
63	Mr. Gauri Shankar Prasad	Central Member	Nepal Farmers Federation, Bara
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65	Mr. Rameswor Phuyal	Central Member	CPN UML, Kathmandu
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67	Mr. Kapil Prasad Mainali	Member	Nepali Congress, Sarlahi
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74	Mr. Raghu Raman Neupane	President	Nepali Congress, Makwanpur
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84	Mr. Narayan Khatiwada	Chairman	CPN UML, Nuwakot
85	Mr. Lal Kumar K.C.	Member	CPN UML, Bagmati Dolakha Zone Coordination Committee
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88	Mr. Rajan Dahal	Reporter	Avenues TV
89	Mr. Dipendra Rokka	Reporter	Himalaya TV
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91	Mr. Sabin Neupane	Reporter/Editor	NTV/Samayanukul Dainik
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106	Mr. Dhruba Subedi		Dhading
107	Mr. Rajendra Paudel		Dhading
108	Mr. Hari Humagain	Reporter	Hetauda
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132	Thakur Man Bhulun	Member	CPN-ML, Lalitpur
133	Suresh Prasad Singh	Member	CPN-UML, Mahottari
134	Anita Parajuli	Reporter	Narayani Dailly/ Himalayan Times
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138	Bisnu Maya Biswokarma	Reporter	Sambridda Samaj
139	Govinda Prasad Neupane	Reporter	Himalini Monthly Newspaper

140	Yogendra Karki	Reporter	Hetauda FM
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145	Surya Prasad Paudel	Senior Livestock Development Officer	Ministry Of Agricultural Development
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Regional Workshop on Agricultural Development Stratrgy
Biratnagar (2069/05/20)

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7	Ganesh Kambang	Panchthar	CPN-UML, Chief
8	Prenu Shibakoti	Member	All Nepal Peasant's Federation
9	Til Kumar Merangbo	Taplejung	CPN-UML, Taplejung
10	Jeevan Sapkota	Member	All Nepal Peasant's Federation
11	Ghan Shyam Thapa		All Nepal Peasant's Federation (R), Ilam
12	Lal Bahadur Kandawa		All Nepal Peasants Federation
13	Keher Shing Chemjhong		All Nepal Peasants Federation
14	Dhundi Raj Thapa		Dhankuta
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16	Satyanarayan Mandal	Project coordinator	IWRMP
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18	Krisna Lal Dhawa	Secretary	CPN-ML, sunsari
19	Keshav Prasad Dahal	President	Nepali Congress, Taplejung
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25	Manoj Kumar Chaudhary	Engineer	Regional Agriculture Directorate, Biratanagar
26	Bachhu Kailash Koirala	Planning Offcer	Regional Agriculture Directorate, Biratanagar
27	Hirday Ram Pokhrel	JT	Regional Agriculture Directorate, Biratanagar
28	Arjun Niraula		Divison Cooperatve , morang
29	Arjun Subedi	News Coordinator	Biratnagar
30	Shiba Angla	A	Dhankuta
31	Binod Dhakal	Chief	CPN-UML, Morang
32	Umesh Kumar Dhang	Chief	CPN-UML, Shankhuwasabha
33	Taraman Gurung	President	Nepali Congress, Shankhuwasabha
34	Rajendra Rai		Dhankuta
35	Rajendra Gautam	Member	All Nepal Peasants Federation
36	Sabitri Regmi	Member	All Nepal Peasants Federation
37	Bhuwan Singh Rai	Member	All Nepal Peasants Federation
38	Bhima Gautam		Morang
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41	Kalpana Rai		Khotang
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43	Narendra Khatwada	Member	National Farmer Association, Okhaldhunga
44	Bishnu Bahadur Dhang	President	Nepali Congress, Sunsari
45	Kedar Bahadur Thapa	President	Nepali Congress, Morang
46	Somit Bahadur Chaudhary		Morang
47	Shyam Ram bir	Agriculture Economist	Department of Agriculture
48	Bishnu Kumar Rai	President	Nepali Congress, Khotang
49	Himal Karki	President	Nepali Congress,Udayapur
50	Sashi Sedhai	President	Nepal Farmer Coliation, Udayapur
51	Uddab Thapa	President	Nepali Congress, Jhapa
52	Amarendra Kumar Bhagad	Engineer	Eastern Irrigation Division
53	Balkrisna Thapa	President	Nepali Congress, Bhojpur
54	Rabin Koirala	Chief	CPN-UML, Jhapa
55	Gyannath Ghimire		Jhapa
56	Shibasharan Mandal		Saptari
57	Lay Prasad Baskota		CPN-ML, Panchthar
58	Rita Chaudhary	Member	Akhil Nepal Women Association, saptari

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74	Hari Bahadur Khanal		Farmers coliation, Morang
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82	Rajbikram karki		Okhaldhunga
83	Shyam Kumar Shrestha	Farmer	Bhojpur
84	Dhanu Mandal	Farmer	Saptari
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99	Karan Dhimal	Farmer	Morang
100	Lilkuma Rajbansi	Farmer	Morang
101	Suryamaya Dhmal	Farmer	Morang
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108	Tejman kandawa		Therathum
109	PremNath Adhkari		Biratnagar
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120	Pradip Kumar Sunuwar	President	Nepali Congress, Okhaldhunga
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122	Pramod Karki	Secretary	Farmer Association, Okhaldunga
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131	Jagat Narayan Shaha		Siraha
132	Mahanada Thakur		Sunsari

133	Sushil Mehata		Sunsari
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138	Shesraj Dahal	Member	Farmers Assocation
139	Dharmanath Shah		Siraha
140	Dinanath Ghimire	PL Member	CPN-ML, Siraha
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144	Shiva Dayal Das		Biratnagar
145	Tara Acharya		Morang
146	Rebati Raman Bhandari		Morang
147	Sudama Shah	Office Helper	CADP
148	Gopal Prasad yadav	Office Helper	CADP
149	Ram Prasad mehata		Kathmandu
150	Dinesh Kunyaha	President	Nepali Congress, Saptari
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152	Prithvi Bahadur Khadka	Pale	Regional Agriculture Directorate, Biratanagar
153	Tharka prasad kaphle	Pale	Regional Agriculture Directorate, Biratanagar
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155	Ghamanda Bahadur Bhandari	Pale	Regional Agriculture Directorate, Biratanagar
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157	Kalpana Shrestha		Sunsari
158	Shrojala Koirala		CADP
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161	Purna Bahadur Sunuwar	Office Helper	Regional Agriculture Directorate, Biratanagar
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ADS Task Force Group Meeting
Dhulikhel, 28 -29 Jestha, 2070

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ADS Draft Woorkplan and Road Map Review Workshop
Dhulikhel, 31 Jestha, 2070

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ADS Regional Workshop
Dhankuta 2071/01/29

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6	Dr. Prem Dangal	General Secreatary	All Nepal Peasants' Federation
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8	Gopal Bhandari	Coordinator, Eastern	National Peasants' Coalition
9	Dr. Bodh Prasad Parajuli	Regional Director	Regional Directorate of Livestock Services
10	Mukunda Bhusal	Crop Development Officer	IWRMP, DOA

11	Som Prasad Bhattarai	Acting CDO	District Administration Office, Dhankuta
12	Sabitra Regmi	National Committee member	All Nepal Peasants' Federation
13	Devimaya Bhattarai	National Committee member	All Nepal Peasants' Federation
14	Gyan Bahadur Katuwal	Member	All Nepal Peasants' Federation
15	Ganga Prasad Chemjong	National Committee member	All Nepal Peasants' Federation
16	Shiva Angla	District Chairman, Dhankuta	All Nepal Peasants' Federation
17	Shiva Kanta Chaudhary	District Chairman, Udayapur	All Nepal Peasants' Federation
18	Hari Kumar Pokharel	National Committee member	All Nepal Peasants' Federation
19	Benu Siwakoti	Member	All Nepal Peasants' Federation
20	Dukhilal Chaudhary	National Committee member	All Nepal Peasants' Federation
21	Dayanand Adhikary	District Chairman, Morang	All Nepal Peasants' Federation
22	Bhuwan Singh Rai	Member	All Nepal Peasants' Federation
23	Tara Subedi	District Chairman, Jhapa	All Nepal Peasants' Federation (Revolutionary)
24	Ghan Shyam Thapa	Secretariate Member	All Nepal Peasants' Federation (Revolutionary)
25	Keher Singh Chemjong	District Chairman	All Nepal Peasants' Federation (Revolutionary)
26	Agni Basnet	District Chairman	All Nepal Peasants' Federation (Revolutionary)
27	Tek Bahadur Rai	District Chairman	All Nepal Peasants' Federation
28	Thakur Nath Poudel	District chairman	All Nepal Peasants' Federation
29	Rudra Bahadur Adhikary	District chairman	All Nepal Peasants' Federation
30	Birjung Rai	District Chairman, Bhojpur	All Nepal Peasants' Federation
31	Hari Narayan Mahato	Central Committee Member	All Nepal Peasants' Federation (Revolutionary)
32	Ganesh Prasad Ghimire	District Chairman, Terhathum	Nepal Farmers Association
33	Kedar Bahadur Thapa	District Chairman, Morang	Nepal Farmers Association
34	Ram Bahadur Basnet	District Chairman, Sankhuwasabha	Nepal Farmers Association
35	Shiva Sharan Mandal	Central Committee Member	Nepal Farmers Association
36	Ishwori Acharya	District committee member, Morang	Nepal Farmers Association
37	Hari Bahadur Khanal	Member	National Peasants' Coalition
38	Chhabi Lal Ghimire	Acting SADO	District Agriculture Development Office, Dhankuta
39	Sushma Rai	Member	All Nepal Peasants' Federation
40	Til Bahadur Karki	District Chairman, Taplejung	Nepal Farmers Association

41	Bishnu Bahadur Dangi	District Chairman, Sunsari	Nepal Farmers Association
42	Keshav Prasad Bhattarai	Secretary, Sunsari	Nepal Farmers Association
43	Bhisma Raj Angdabe	District committee member, Khotang	All Nepal Peasants' Federation (Revolutionary)
44	Lekhnath Dhakal	District Chairman, Solukhumbu	All Nepal Peasants' Federation (Revolutionary)
45	Prema Madongba	Journalist	Radio Makalu
46	Min Prasad Subedi	District Coordinator, Dhankuta	National Peasants' Coalition
47	Mukti Nath Khatiwada	Assistant Inspector of Police	District Police Office, Dhankuta
48	Ram Bansa Yadav	Hawaldar	District Police Office, Dhankuta
49	Lokendra Kunwar	Section Officer	District Development Committee, Dhankuta
50	Asmita Dahal	Member	All Nepal Peasants' Federation
51	Hari Prasad Khatiwada	Member	Nepal Farmers Association
52	Krishna Rai	Journalist	Radio Nepal
53	Siddha Raj Rai	Journalist	Nagarik Daily
54	Pushpa Raj Poudel	Agriculture Extension Officer	District Agriculture Development Office, Dhankuta
55	Ambika Bahadur Khadka	District Committee Member, Panchthar	Nepal Farmers Association
56	Mahendra Nath Poudel	Senior Agriculture Economist	Ministry of Agricultural Development
57	Rajendra Bhattarai	Secretary, Jhapa	Nepal Farmers Association
58	Nirmal Baral	Coordinator,	Kochila Rajya Samiti
59	Jibachha Yadav	District Chairman, Siraha	All Nepal Peasants' Federation
60	Narendra Khatiwada	Secretariate Member	All Nepal Peasants' Federation
61	Dr. Jiwan Kumar Singh	Senior Veterinary Officer	District Livestock Service Office, Dhankuta
62	Bhawani Parajuli	District committee member, Morang	All Nepal Peasants' Federation (Revolutionary)
63	Manju Rai	District committee member, Khotang	All Nepal Peasants' Federation (Revolutionary)
64	Ganesh Timilsina	Central Committee Member	Nepal Farmers Association
65	Binod Kumar Bhattarai	Senior Agriculture Economist	Ministry of Agricultural Development
66	Bikram Karki	District Committee Member, Solukhumbu	All Nepal Peasants' Federation
67	Dharma Raj Rai	Member	Nepal Farmers Association
68	Kalyan Sharma	District Chairman, Morang	All Nepal Peasants' Federation (Revolutionary)
69	Rabindra Budhathoki	District Committee Member, Bhojpur	All Nepal Peasants' Federation (Revolutionary)

70	Pravin Rai	District Committee Member, Khotang	All Nepal Peasants' Federation (Revolutionary)
71	Chinta Narayan Khanal	Junior Technician	IWRMP, DOA
72	Bhabindu Adhikary	District Committee Member, Sankhuwasabha	All Nepal Peasants' Federation
73	Anju Rai	District Committee Member, Dhankuta	All Nepal Peasants' Federation
74	Udaya Shankar Mandal	District Committee Member, Saptari	All Nepal Peasants' Federation
75	Dhundi Raj Thapa	District Chairman, Dhankuta	All Nepal Peasants' Federation (Revolutionary)
76	Dhruba Dangi	Central Committee Member	All Nepal Peasants' Federation (Revolutionary)
77	Indra Bahadur Dhungel	District Chairman, Dhankuta	Nepal Farmers Association
78	Laxmi Prasad Kharel	Senior Agriculture Development Officer	District Agriculture Development Office, Taplejung
79	Jagatain Devi Shah	Central Committee Member	All Nepal Peasants' Federation
80	Bina Devi Rai	Junior Technical Assistant	District Agriculture Development Office, Dhankuta
81	Chitra Kala Chauhan	Junior Technician	District Agriculture Development Office, Dhankuta
82	Dambar Chemjong	District Committee Member, Panchthar	All Nepal Peasants' Federation (Revolutionary)
83	Thagendra Prasad Khatiwada	Secretary, District Committee	All Nepal Peasants' Federation (Revolutionary)

ADS Regional Workshop
Nepalgunj (2071/02/13)

S.N	Name	Designation	Office
1	Hon'ble Dr. Prem Dangal	Member	National Planning Commission
2	Dr. Rajendra Prasad Adhikari	Joint Secretary	Ministry of Agricultural Development
3	Mr. Bhanu Sigdel	Secretary	National Peasants' Coalition
4	Mr. Tej Bahadur Subedi	Deputy Director General	Department of Agriculture
5	Mr. Laxman Prasad Paudel	Project Coordinator	IWRMP
6	Mr. Bala Ram Baskota	Deputy General Secretary	National Peasants' Coalition
7	Mr. Nahendra Khadka	Member, Central Secretariat	National Peasants' Coalition
8	Mr. Sri Narayan Sharma	Regional Director	Regional Agricultural Directorate, Mid Western Region
9	Mr. Rajendra Prasad Bhari	Project Chief	HVAP
10	Mr. Gokarna Aryal	Project Manager	RISMFP
11	Mr. Gokarna Acharya	Agri. Economist	Ministry of Agricultural Development
12	Mr. Govinda Gewali	Senior Program officer	ADB/NRM

13	Mr. Kishor Prasad Kayastha	Regional Director	Regional Livestock Service Directorate, Mid western Region
14	Mr. Mahendra Tiwari		Nepali Congress
15	Mr. Sher Bahadur Saud	Central member	Nepal Farmer Association, Kanchanpur
16	Mr. Krishna Prasad Panthi	District Secretary	All Nepal Peasants' Federation, Rupendehi
17	Ms. Prema Adhikari	Secretary	All Nepal Peasants' Federation, Salyan
18	Ms. Rekha Sharma	Central member	All Nepal Peasants' Federation, Dang
19	Mr. Hari Bhakta Adhikari	Member	National Peasnats' Coalition , Banke, Kohalpur
20	Mr. Tika Ram Khadka	Central member	Farmer Association
21	Mr. Amar Oli	Chairman	All Nepal Peasants' Federation, Dang
22	Mr. Bir Bahadur Khadka	Vice Chairman	All Nepal Peasants' Federation, Rukum
23	Mr. Govardhan Sharma Acharya	Member	National Peasants' Coalition, Dang
24	Mr. Tirtha Bahadur Budha	Chairman	Jumla
25	Mr. Khadga Bahadur Sejuwal	President	Farmer Association, Jumla
26	Mr. Tej Bahadur K.C		Rukum
27	Mr. Lokendra Bahadur Thapa	Chairman	Farmer Association, Mugu
28	Mr. Man Bahadur Paal	Vice President	Nepal Farmer Association, Kanchanpur
29	Mr. Narayan Dutta Panta	Central member	Nepal Farmer Association, Kanchanpur
30	Ms. Januka Chhetri		Kanchanpur
31	Mr. Degendra Bikram Singh G.C	DCM	Pyuthan
32	Mr. Laxmi Prakash Rajbhandari	Vice Chairman	Akhil Kisan Mahasangh, Pyuthan
33	Mr. Prem Lal Sapkota	Chairman	All Nepal Peasants' Federation, Banke
34	Mr. Tan Prasad Pandey	District Member	Rupendehi
35	Mr. Narayan Bhusal	Representative	Kapilvastu
36	Mr. Ganesh Paudel	Representative	Banke
37	Ms. Sharada Sharma (Laxmi)	Representative	Banke
38	Mr. Binod Kumar Giri	Central member	Surkhet
39	Mr. Ambika Pathak	Officer	DDC, Banke
40	Mr. Ravi Kishan Paswan		
41	Mr. Mukunda Bhusal	Crop Devt. Officer	IWRMP/DoA
42	Mr. Binod Bhattarai	Account Officer	IWRMP/DoA
43	Ms. Laxmi Timilsina	Farmer	Kailali
44	Mr. Pushpa Raj Belbase	Sr. Plant Protection Officer	Regional Agricultural Directorate, Mid Western Region
45	Mr. Rabi Joshi		New Lucky Enterprises

46	Mr. Rajendra Prasad Pradhan	Sr. Agri.Devt. Officer	DADO, Banke
47	Mr. Tek Prasad Luitel	Sr. Agri. Economist	MoAD
48	Mr. Hikmat Kumar Shrestha	Sr. Agri.Devt. Officer	DADO, Bardiya
49	Mr. Jado Lal Sah	Technical Assistant	DADO, Banke
50	Ms. Jivanti Poudel	Member	All Nepal Peasant Federation, Kailali
51	Ms. Agastha Adhikari		
52	Mr. Ram Bahadur Mahar	Chairman	Nepal farmer Association, Bajhang
53	Mr. Prakash Bahadur Deuba	Central member	Nepal Farmer Association, Kailali
54	Mr. Prem Bahadur Ghale		Nepal Farmer Association, Surkhet
55	Mr. Prakash Khanal		Nepal Farmer Association, Dailekh
56	Mr. Ganesh Chandra Timilsina	Central member	Nepal Farmer Association,, Kathmandu
57	Mr. Amar Prasad Bhandari	Central member	Nepal Farmer Association, Pyuthan
58	Ms. Rudra Sharma	Planning Officer	National Planning Commission
59	Mr. Lal Kumar Shrestha	Sr. Agri. Economist	MoAD
60	Mr. Binod Kumar Bhattarai	Sr. Agri. Economist	MoAD
61	Ms. Sheela Devi Tiwari	Member	Nepali congress, Kalikot
62	Mr. Tarka Bahadur Shahi	Secretary	CPN UML Central Agri. and Land Reform Department,
63	Mr. Jaagu Ray Chaudhary		All Nepal Peasants' Federation (Revo), Kanchanpur
64	Mr. Nayaram Thapa	Central Secretary	All Nepal Peasants' Federation (Revo), Dailekh
65	Mr. Bishwo B. Tharu	Central member	All Nepal Peasants' Federation (Revo), Bardiya
66	Mr. Mun Bahadur Karki	Member	All Nepal Peasants' Federation, Jumla
67	Mr. Man Bahadur Bhandari	Central member	All Nepal Peasants' Federation (Revo), Kalikot
68	Ms. Chandra Kumari Gurung		Surkhet
69	Mr. Kurmaram Shahi	Chairman	CPN UML , Kalikot
70	Mr. Kal Bahadur Hamal	Central member	All Nepal Peasant Federation (Revo), Humla
71	Mr. Umanath Poudel	Representative	Kisan Sangh, Bardiya
72	Mr. Tul Prasad Gautam	Representative	Farmer's Coalliation, Bardiya
73	Mr. Sher Bahadur Singh	Chairman	Farmer's Coalliation, Kanchanpur
74	Mr. Krishna Raj Upadhaya	President	Nepal Kisan Sangh, Salyan
75	Mr. Man Singh Dangi	Chairman	All Nepal Peasants' Federation,
76	Mr. Rajan Dhakal	Crop Devt. Officer	RISMFP

77	Mr. Mohamad Harmullah Khan	Crop Devt. Officer	DADO, Banke
78	Mr. Dharma Rokaya	Coordinator	Right to Food Network
79	Mr. Kedar Prasad Acharya	Member	All Nepal Peasants' Federation (Revo), Bardiya
80	Mr. Lekh Raj Regmi	State Coordinator	Tharuwan, Dang
81	Mr. Dinesh Pathak	Technical Assistant	DADO, Banke
82	Mr. Dal Bahadur Sahi		Rupandehi
83	Mr. Budha Bahadur Basnet		Pyuthan
84	Ms. Subhkamana Paudel	Member	National Farmer Coalition, Kailali
85	Mr. Bhim Bahadur Basnet	President	Nepal Farmer Association, Pyuthan
86	Mr. Amrit Bahadur Oli	Member	All Nepal Peasant Federation (Revo), Rukum
87	Mr. Khadga Bahadur Magar	Member	All Nepal Peasant Federation R
88	Mr. Santosh Acharya	Member	National Farmer Coalition, Banke
89	Ms. Samjhana Rawal	Member	National farmer Coalition, Kanchanpur
90	Mr. Shibendra Karki	Member	National Farmer Coalition, Kalikot
91	Ms. Aarati Tiwari	Member	All Nepal Peasant Federation, Banke
92	Ms. Rita Paudel	Member	All Nepal Peasant Federation,
93	Mr. Hari Yadav	Technical Assistant	IWRMP
94	Mr. Rajesh Sah	Agri. Economist	IWRMP
95	Ms. Gauri Adhikari	Nayab Subba	IWRMP

S.N	Name	Designation	Office
1	Mr. Uttam Kumar Bhattarai	Joint Secretary	Ministry of Agricultural Development
2	Dr. Rajendra Prasasd Adhikari	Joint Secretary	Ministry of Agricultural Development
3	Dr. Suroj Pokhrel	Program Director	Crop Development Directorate
4	Mrs. Jeevan Prava Lama	Director General	Department of Food Technology and Quality Control
5	Mr. Suresh Babu Tiwari	Director General	Department of Agriculture
6	Dr. Nara Bahadur Rajuwar	Director General	Department of Livestock Services
7	Mr. Dilaram Bhandari	Chief	Seed Quality Control Center
8	Mr. Kailash Pokhral	Under Secretary	Ministry of Finance
9	Mr. Mahesh Kharel	Under Secretary	National Planing Commission
10	Dr. Prem Danagal	Member	National Peasants' Coalition
11	Mr. Balaram Banskota	Member	National Peasants' Coalition
12	Mr. Bhanu Sigdel	Secretary	National Peasants' Coalition
13	Mr. Chitra Bahadur Shrestha	Co-Chair Person	National Peasants' Coalition
14	Mr. Nahendra Khadka	Member	National Peasants' Coalition
15	Mr. Ganesh Shah	Member	National Peasants' Coalition
16	Dr. Keshav Khadka	Member	National Peasants' Coalition
17	Mr. Mahaendra Khanal	Senior Horticulture Development Officer	Seed Quality Control Center
18	Mr. Mahendra Nath Paudel	Senior Agrie-conomist	Ministry of Agricultural Development
19	Mrs. Sabnam Sivakoti	Senior Plant Protection Officer	Ministry of Agricultural Development
20	Mr. Surya Paudel	Senior Livestock Development Officer	District Livestock Services Office, Makwanpur
21	Mr. Binod Kumar Bhattarai	Senior Agrie-conomist	Ministry of Agricultural Development
22	Mr. Tek Prasasd Luitel	Senior Agrie-conomist	Ministry of Agricultural Development
23	Mr. Sudip Khatiwada	Agriculture Officer	Ministry of Agricultural Development
24	Dr. Indra Kanta Jha	Project Manager	Zoonoses Control Project
25	Mr. Kishor Panta	Senior Agri Extension Officer	Intetrated Water Resource Management Project
26	Dr. Hari Bahadur K.C.	Senior Plant Protection Officer	Ministry of Agricultural Development
27	Mr. Kalash Ram Chaudhary	Senior Agrie-conomist	Ministry of Agricultural Development

ADS Task Force Meeting
Dhulikhel (2070/01/15-16)

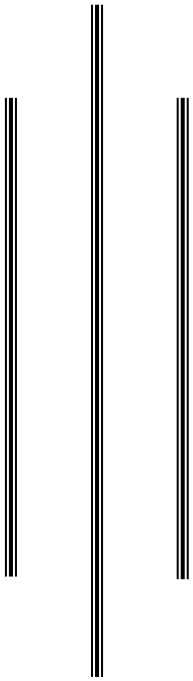
S.N	Name	Designation	Office
1	Dr. Prabhakar Pathak	Joint Secretary	Ministry of Agricultural Development
2	Mr. Bhabakrishna Bhattarai	Joint Secretary	National Planing Commission
3	Dr. Rajendra Prasasd Adhikari	Joint Secretary	Ministry of Agricultural Development
4	Mr. Ram Prasad Pulami	Joint Secretary	Ministry of Agricultural Development
5	Mr. Yogendra Kumar Karki	Joint Secretary	Ministry of Agricultural Development
6	Mr. Chitra Bahadur Shrestha	Chair Person	Federartion of All Nepal Farmer (Revolutionary)
7	Mr. Bhanu Sigdel	President	Nepal Farmer Association
8	Dr. Prem Danagal	General Secretary	Federartion of All Nepal Farmer
9	Mr. Ganesh Shah	Representative	Nepal Farmer Federation
10	Mr. Balaram Banskota	Deputy General Secretary	Federartion of All Nepal Farmer
11	Mr. Nahendra Khadka	Secretariat Member	Federartion of All Nepal Farmer (Revolutionary)
12	Mr. Mahendra Nath Paudel	Senior Agri-economist	Ministry of Agricultural Development
13	Mrs. Sabnam Sivakoti	Senior Plant Protection Officer	Ministry of Agricultural Development
14	Mr. Surya Prasad Paudel	Senior Livestock Development Officer	Ministry of Agricultural Development
15	Mr. Lal Kumar Shrestha	Senior Agri-economist	Ministry of Agricultural Development

APPENDIX 7: SUGGESTIONS REPORT FROM AGRICULTURE AND WATER RESOURCE COMMITTEE OF LEGISLATURE PARLIAMENT (AWRC-LP)

व्यवस्थापिका-संसद,

कृषि तथा जलस्रोत समिति

कृषि विकास रणनीति सम्बन्धि सुझाव प्रतिवेदन, २०७१



व्यवस्थापिका-संसद,

कृषि तथा जलस्रोत समिति सचिवालय

सिंहदरवार, काठमाडौं

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भाग-१

परिचय

पृष्ठभूमिः

नेपालको अर्थतन्त्रमा कृषि क्षेत्रको प्रधान्यता यहाँको वास्तविकता हो । कुल गार्हस्थ्य उत्पादनमा ३५ प्रतिशत योगदान कृषि क्षेत्रको छ र करीब दुई तिहाई जनता कृषिमा नै निर्भर रहेका छन् । कृषि क्षेत्रको विकास र विस्तारले देश विकासमा महत्वपूर्ण योगदान गर्दछ । कृषि लगायत प्राकृतिक स्रोतको समुचित उपयोग गरी तुलनात्मक लाभको आधारमा कृषि बालीको प्रतिस्पर्धी क्षमता बढाएर उत्पादन वृद्धि गरी मुलुकलाई खाद्यान्नमा आत्मनिर्भर बनाउनु हाम्रो प्राथमिकता हुनुपर्छ । तुलनात्मक लाभका नगदे बालीहरुमा व्यवसायीकरण, कृषि मार्फत आयात प्रतिस्थापन र आम किसानहरुको आर्थिकस्तर वृद्धि गर्दै समृद्ध नेपाल बनाउने नै हाम्रो परिकल्पना हुनुपर्दछ । कृषिमा औद्योगीकरण नभएसम्म देशको समृद्धिको कल्पना पनि गर्न सकिदैन र हुन सक्दैन । कृषिमा व्यवसायीकरण, विविधीकरण, आधुनिकीरण गरी यस क्षेत्रको योगदान बढाउने र विदेश पलायन भएका र वैदेशिक रोजगारीमा गएका यूवाहरुलाई कृषि क्षेत्रमा आकर्षित गरी कृषिलाई आत्मनिर्भर बनाउनु अहिलेको आवश्यकता हो ।

यसै कुरालाई दृष्टिगत गरी कृषि क्षेत्रमा जलवायु परिवर्तनका असर कम गर्ने, सिंचाई सुविधा सर्वसुलभ बनाउने, सीमान्त भूमिमा कृषिको लागि चाप घटाउने, किटनाशक विषादीको अनुपयुक्त र असुरक्षित प्रयोगबाट वातावरण र जनस्वास्थमा नकारात्मक प्रभाव घटाउने, उपलब्ध कृषि प्रविधिहरु पर्याप्त रुपमा कृषकको थलोमा पुऱ्याउने, रासायानिक मल आयात र वितरण व्यवस्था सुनिश्चित तुल्याउने, यूवा जनशक्तिलाई कृषि पेशामा आकर्षित गर्न, कृषि उपजको प्रशोधन प्रविधिको विकास र विस्तार गर्ने, कृषि एवं पशुजन्य उत्पादन, वितरण, आयात एवं निर्यातमा गुणस्तर एवं स्वच्छताको नियमन कार्य प्रभावकारी तुत्याउने, कृषि उत्पादकत्व बढाउन कृषक समूह र सहकारीको संस्थागत विकास, गरिब, महिला, जनजाति, दलित, मधेसी, मुस्लिम र दुर्गम क्षेत्रका कृषकहरुको कृषि तथा पशु सेवा कार्यक्रममा पहुँच वृद्धि गर्ने, कृषि सम्बनिध औपचारिक र अनौपचारिक शिक्षामा पहुँच बढाउने जस्ता चुनौतिहरु रहेको कुरा चालु त्रिवर्षीय योजनामा पनि औंल्याइएको छ । दुरगामी असर पार्ने नीति नियम कानून, त्यसलाई सहयोग गर्ने संरचना, राज्यको लगानी, नीजी सहकारी क्षेत्रको सक्रियता र किसानहरुको सचेतना, संलग्नता, लगनशीलता, मिहिनेत, दाताहरुको लगानी प्रतिवद्धताबाट कृषि क्षेत्रमा उल्लेख्य प्रगति भई कृषिमा आत्मनिर्भर हुन सकिन्छ र कृषि क्षेत्रलाई आकर्षित र मर्यादित बनाई यूवावर्गलाई कृषि क्षेत्रमा टिकाई राख्न सकिन्छ ।

दीर्घकालीन कृषि योजना सफल हुन नसकेको परिप्रेक्ष्यमा कृषि विकास मन्त्रालयले दीर्घकालीन कृषि रणनीति तयार पारेको र यस्तो नीति निर्माणमा पनि संसदको भूमिका रहनु पर्दछ भन्ने सन्दर्भमा कृषि तथा जलस्रोत समितिको मिति २०७१।०५।२४ गतेको बैठकबाटसमितिका सदस्य माननीय श्री आनन्दप्रसाद पोखरेलको संयोजकत्वमाकृषि विकास उप-समिति गठन भएको थियो । उक्त उपसमितिलाई कृषि विकास रणनीतिको सम्बन्धमा सबै पक्षका सरोकारवालासंग छलफल गरी सुझाव सहितको प्रतिवेदन पेश गर्न कार्यभार दिइएकोमा उपसमितिले विभिन्न सरोकारवर्गसँग छलफल गरी प्राप्त सुझावहरु समेत अध्ययन गरी रणनीतिको सम्बन्धमा आफ्नो सुझावहरु सिफारिस प्रस्तुत गरिएको थियो। उपसमितिले पेश गरेको प्रतिवेदनमा छलफल र परिमार्जन सहित यो प्रतिवेदन प्रस्तुत गरिएको छ।

अध्ययनको उद्देश्य

अध्ययनको मुख्य उद्देश्य प्रस्तावित कृषि विकास रणनीतिको अध्ययन गरी सम्बन्धित सरोकारवालाहरुसँग छलफल गरी समितिको सुझावहरु प्रस्तुत गर्नु रहेको छ ।

अध्ययनको औचित्य

१. संसदको मुख्य काम नीति निर्माण गर्ने भए तापनि नीति अन्तर्गत बन्ने ऐनमा मात्र संसदको भूमिका रहने प्रचलन रहेको छ । नीतिबाट नै अन्य ऐन, नियम निसृत भएर आउने हुँदा नीति निर्माण संसदको चासोको विषय बन्नु पर्छ र रणनीतिमा संसदले अपनत्व लिनु पर्दछ ।

२. आगामी २० वर्षको नेपालको कृषि क्षेत्रको विकासमा यस रणनीतिले नै मार्गनिर्देश गर्ने र ऐन, नियम, बजेट र कार्यक्रम समेत प्रभाव पार्ने भएकोले यो रणनीति निर्माणको चरणमा नै सम्बन्धित सबै निकायको चासो तथा सहभागिता र राजनीतिक स्वामित्व आवश्यक छ।

३. रणनीति निर्माणसँगै अकी महत्वपूर्ण कुरा यसको सफल कार्यन्वयनको हो। समितिADS ले APP को जस्तो असफल नियती व्योहोर्नु नपरोस भन्ने चाहन्छ। यस कृषि विकास रणनीतिको सफल कार्यान्वयनका लागि यसका सरोकारवाला निकायको प्रतिवद्धता, कार्ययोजना र समन्वय अपरिहार्य छ।

४. रणनीति निर्माणका क्रममा छुटेका सरोकारवाला निकायसंग छलफल गर्न, छुटेका विषयहरू समेटन र संरचनागत परिवर्तन, कानून परिमार्जन र स्रोत साधन व्यवस्थापनका लागि समेत थप स्पष्टता वनाउन तथा रणनीति कार्यान्वयनमा प्रत्यक्ष सरोकार राख्ने निकायहरूविच अष्पष्टता हटाउन र यसको सफल कार्यान्वयन हुन सकोस भनेर नै यो अध्ययन गरिएको हो।

अध्ययन विधि

प्रस्तावित कृषि विकास रणनीतिमा सुझाव पेश गर्ने सन्दर्भमा उप-समितिले विभिन्न विधिहरु अपनाएको थियो। अपनाइएका विधिहरुमा प्रस्तावित रणनीति र विभिन्न सन्दर्भ सामाग्रीको अध्ययन विश्लेषण गरिएको थियो। त्यसपछि विभिन्न संघ, संस्था, पदाधिकारीहरुसँग छलफल र अन्तरक्रिया गरिएको र विभिन्न राजनीतिक दलहरुको आधिकारिक धारणाको जानकारी लिइएको थियो । यसरी जानकारी लिइएका संघ, संस्था र सरकारी नियकायका सम्बद्ध पदाधिकारी, सरोकारवाला मन्त्रालयहरू, कृषिसँग सम्बन्धित विज्ञहरु, व्यवसायीहरु, महिला, जनजाति, दलित, पिछडिएको वर्ग, भूमिहीनका प्रतिनिधिसँग छलफल अन्तरक्रिया गरिएको थियो । त्यसैगरी नीति निर्माणमा सहयोग गर्ने दातासँग नीति कार्यान्वयनमा सहयोग गर्ने प्रतिवद्धताको लागि छलफल पनि गरिएको थियो। उप समितिवाट प्रस्तावित कृषि विकास रणनीतिमा सुझाव सहितको प्रतिवेदन समितिमा पेश भएपछि समितिमा कृषि विकास रणनीति कार्यान्वयनमा सरोकार राख्ने विभिन्न १० वटा मंत्रालयसँग छलफल गरिएको थियो । उपसमितिको गठन विधि अनुसूची १ मा, छलफलमा सहभागी विज्ञ र संघ संस्थाको नामावली अनुसुची २ मा, सहभागी निकाय र विज्ञहरूवाट प्राप्त सुझावहरु अनुसुची ३ मा, कृषि विकास रणनीति कार्यान्वयनमा सरोकार राख्ने विभिन्न १० वटा मंत्रालयवाट छलफलमा संलग्न पदाधिकारीहरुको नामावली अनुसूची ४ मा, समितिका माननीय सदस्यहरुको नामावली अनुसूची ५ मा र समिति सचिवालयका कर्मचारीहरुको नामावली अनुसूची ६ मा राखिएको छ ।

भाग-२

कृषि क्षेत्रको समस्या

करिव ८३ प्रतिशत ग्रामिण जनताको मुख्य जिविकोपार्जनको श्रोतका रुपमा रहेको नेपालको कृषि क्षेत्रले तेस्रो आवधिक योजनाबाट नै विकासको प्राथमिकतामा पर्न सफल भएता पनि अपेक्षाकृत विकास हुन सकेको छैन। कृषि क्षेत्रको विकास नीतिररणनीतिमाहरुमा प्राथमिकतामा परे पनि राज्यबाट हुने लगानीको प्राथमिकतामा कहिल्यै परेन। एकातिर कृषि विकासका लागि बजेटको अपर्याप्तताको विषय सदैव टड्कारो रुपमा आउँछ भने अर्कातिर कृषि विकासका योजना कार्यान्वयन गर्ने निकायबाट समयमा बिनियोजित बजेट खर्च गर्न नसकेको र भएको वजेटको कार्यान्वयन पनि प्रभावकारी नवनेको अवस्था छ। कृषि विकासको जिम्मा पाएका निकायहरुको समयानुकूल क्षमता अभिबृद्धि हुन नसक्दा र सुशासन सुनिश्चित गर्न नसक्दा कृषि विकासका परियोजनाबाट परिलक्षित उपलब्धिहरु हासिल हुन सकेका छैनन। जसको परिणाम विगतमा खाद्यान्न निर्यात गर्ने मुलुक आज खाद्यान्न आयात गर्नु पर्ने अवस्थामा पुगेको छ ।

राष्ट्रिय कुल ग्रार्हस्थ उत्पादनमा कृषि क्षेत्रले गरेको योगदानका आधारमा यस क्षेत्रको लागि हाल आवश्यक लगानीको करिव १० प्रतिशत मात्र राज्यबाट प्राप्त गरेको छ। भु-खण्डीकरण, प्रकृतिक प्रकोपलाई व्यवस्थापन गर्न सक्ने राज्यको अपर्याप्त क्षमता, राज्यको अस्थिर भू-नीति जस्ता कारणले कृषि क्षेत्रमा पर्याप्त मात्रामा निजी क्षेत्रको लगानी आकर्षित हुन सकेको छैन। पर्याप्त नीतिगत पुर्वाधारहरुको अभावमा व्यवसायिक कृषि तथा यसको औद्योगिकरणमा अन्तर्राष्ट्रिय लगानी समेत आकर्षित हुन सकिरहेको छैन। हाल सम्म पनि कृषि क्षेत्र व्यवसाय वा उद्यमको रुपमा स्थापित हुन सकेको छैन। प्राकृतिक प्रकोप तथा अन्य खतराबाट हुने क्षतिलाई परिपूर्ति गर्नका लागि विमा र क्षतिपूर्तिको उचित व्यवस्था एवं विमामा सवै कृषकहरुको सहज र सरल पहुँच हुन सकेको छैन।

नेपालमा कृषि अनुसन्धानको क्षेत्रमा राज्यको लगानी कृषि गार्हस्थ उत्पादको करिव ०.४ प्रतिशत छ, जुन अत्यन्त न्यून हो। कृषि अनुसन्धान कृषकहरुको माग, राष्ट्रिय आवश्यकता र भौगोलिक सम्भावनाहरुलाई सम्वोधन गर्ने गरी केन्द्रीत हुन सकिरहेका छैनन् भने अर्कोतिर अनुसन्धानबाट सृजित प्रतिफलहरु सही समयमा सही ढंगले कृषक समक्ष प्रसारित हुन सकिरहेको छैन। कृषि अनुसन्धान, कृषि प्रसार र कृषि शिक्षाका विचमा समन्वय हुन सकेको छैन। कृषि अनुसन्धान र प्रसार विकेन्द्रीकरण हुन सकिरहेको छैन। कृषि उत्पादनको मुख्य आधारको रुपमा रहेको विउ र नश्लहरुको विकास र विस्तार हुन नसक्दा र आवश्यक पूर्वाधार एवं मलको उपलव्धताको अभावले उत्पादन र उत्पादकत्व बृद्धि गर्ने राष्ट्रिय लक्ष्य हासिल हुन सकिरहेको छैन।

प्रचूर मात्रामा पानी भएता पनि सीमित खेतीयोग्य जमिनमा मात्र सिंचाईको सुविधा छ। अधिकांश खेती योग्य जमिन आकासे पानीमा निर्भर छ । कृषि उत्पादन तथा उत्पादकत्व बृद्धिको सिंचाईको अभाव नै मुख्य व्यवधानको रुपमा देखापरेको छ। यसका अलावा सिंचाई परियोजनाको ढाँचा, बजेट विनियोजन तथा व्यबस्थापनले पनि समयमै परियोजना सम्पन्न हुने/नहुने निर्धारण गर्छ । कृषि क्षेत्रको पुर्वाधारका लागि वजेट निक्षेपण भए तापनि अन्य विभिन्न सरकारी निकाय वीच समन्वयको अभावका कारण कृषि क्षेत्रको नयाँ पूर्वाधार निर्माणको जिम्मेवारीका सन्दर्भमा द्विविधा देखिन्छ । अपर्याप्त प्राविधिक तथा व्यबस्थापन क्षमताका कारण स्थानीय स्तरमा सिंचाई परियोजना हस्तान्तरण गरिदैन अनि केन्द्रीकृत निर्णय प्रणालीले ठूला परियोजनालाई मात्र केन्द्र विन्दुमा राखेको पाइन्छ ।

कृषि सडकका नाममा ग्रामीण सडकलाई प्राथमिकता दिए पनि उत्पादन सामग्रीको पहुंच र कृषि उपजको सहज बजारीकरणमा नकारात्मक प्रभाव पर्न गई उत्पादनशील जमिनहरु बाँझो रहन गएको छ। आन्तरिक र वाह्य आप्रवासनका कारण कृषि क्षेत्रमा कृषि मजदुरहरुको अभाव देखिन थालेको छ । ग्रामीण विद्युतीकरणको अभावमा व्यवसायिक तथा औद्योगिक कृषिका लागि अत्यावश्यक उर्जाको अभावमा कृषि व्यवसाय सफल बन्न सकिरहेको छैन । कृषि क्षेत्रको उत्पादन लागत न्यूनीकरण गर्नका लागि कृषि यान्त्रीकरण गर्न समेत विद्युत अभावका कारण नकरात्मक असर पर्न गई उत्पादन लागत बढ्न गईरहेको छ। कृषि उपजहरु जस्तै धान प्रशोधन गर्न प्रशोधनशालाहरु पर्याप्त र नविन प्रविधिका नहुँदा धान भारत निकासी हुने र सोही धान प्रशोधन पश्चात् अत्यन्तै महंगो मूल्यमा आयात हुने अवस्था श्रृजना भएको छ।

आलु, प्याज, तरकारी तथा फलफूल जस्ता कृषि उपजहरुको लागि उचित भण्डारण सुविधा नहुँदा उत्पादन हुने मौसममा सडेर जाने वा न्यून मूल्यमा निर्यात हुने तथा बेमौसममा अत्यन्तै महंगो मूल्यमा आयात हुँदा कृषि उत्पादनमा अपेक्षित विकास नहुनुका साथै राष्ट्रको व्यापार घाटा समेत दिनानुदिन बढ्दै गईरहेको छ। गुणस्तरीय कृषि उपजहरुको उत्पादन, प्रशोधन तथा प्याकेजिङ्ग प्रविधिको विकास, बिस्तार र नियमन हुन नसक्दा निर्यात भैईरहेका कृषि उपजहरु समेत निरन्तर घटदै गएका र निर्यात हुनबाट बन्चित हुन थालेका छन्।

राज्यले विगत केही बर्षहरुबाट मलमा अनुदान उपलब्ध गराउन शुरु गरे तापनि राष्ट्रिय आवश्यकताको सानो अंशलाई मात्र सम्बोधन गर्न सकेको छ । मल वितरण प्रणाली समानुपातिक तथा समतामूलक बन्न सकेको छैन। दूर दराजमा रहेका कृषकहरु यस सुविधाबाट बञ्चित भएका छन् । राज्यले उचित परिमाणमा, उचित समयमा र उचित स्थानहरुमा मल वितरण गर्न नसक्दा कृषि उत्पादनमा अपेक्षाकृत बढोत्तरी हुन सकेको छैन। देशमा मलको अपर्याप्ततासे गर्दा भारत बाट महंगोमा चोरी निकासीका माध्यमबाट मल आयात हुने र त्यस्तो मलको गुणस्तर कमसल हुने तथा म्याद गुज्रिसकेका मलहरु भित्रिने समस्या रहेको छ। मलको गुणस्तरीयतालाई नियमन गर्ने निकाय तथा प्रकृया प्रभावकारी नहुँदा राज्य तथा कृषकहरुको सीमित श्रोत र मेहनत खेर गईरहेको छ।

ग्रामीण क्षेत्रमा कृषि बाहेकको वैकल्पिक रोजगारीको अवसर नहुनु, कृषि क्षेत्रले समेत पर्याप्त रोजगारी श्रृजना गर्न नसक्नु र कृषि प्रतिष्ठित पेशा हुन नसक्दा ग्रामीण भेगका यूवाहरुको विदेश पलायनले हालका दिनमा कृषि व्यावसायलाई महिला, बृद्ध तथा बालबालीकाको पेशाका रुपमा रुपान्तरण भएको देखिन्छ । कृषिको विकास नै ग्रामिण क्षेत्रको दिगो आर्थिक रुपान्तरणको प्रमुख आयाम भएता पनि कृषि क्षेत्रमा नीतिगत तथा पुर्वाधार विकेन्द्रीकरण हुन नसक्दा समग्र ग्रामीण विकासलाई नै प्रभावित गरेको छ। राज्यका तर्फबाट कृषि सेवा प्रदान गर्ने निकाय र विज्ञ जनशक्तिहरुको ठूलो जमात राजधानी र जिल्ला सदरमुकाममा सीमित भएर बस्ने हालको व्यवस्थाले नविनर वैज्ञानिक कृषि प्रविधिहरु ग्रामीण क्षेत्रमा पुग्न सकिरहेको छैन । अनुगमन तथा मुल्याङ्कन प्रणाली मार्फत राज्यबाट भएको लगानी देखिने गरी सेवा प्रवाहको उचित प्रतिफल भर्ल्किन नसक्दा कृषि विकासको समग्र सेवा प्रवाह, पारदर्शिता र सुशासनमा समेत प्रश्न उठ्न थालेको छ।

अहिले कृषि विकास रणनीतिको तयारी गरी रहँदा विगतका कमी कमजोरी नदोहोरिने गरी गर्न सकेको खण्डमा यो दस्तावेजले कृषिमा नयाँ क्रान्ति ल्याउन सक्छ । रणनीति प्राज्ञिक निश्कर्ष र अन्तर्राष्ट्रिय अनुभवका साथै किसानमुखी हुनुपर्छ, समस्त किसानमा सकारात्मक प्रभाव पार्ने किसिमको हुनु पर्छ । नेपालको कृषि विकास रणनीति तयार गर्दा कृषि उत्पादनका

आधार जल, जमिन, जंगल, जैविक विविधता र कृषि पूर्वाधारको विकास, अनुसन्धान, वास्तविक प्रसार, प्रविधि, लगानी र बजारको न्यायोचित सम्वर्धनबाट नै कृषिको रुपान्तरण हुनसक्छ ।

कृषिको असफलता ऐन, नियमसँग पनि जोडिएको विषय हो, नीतिको आधारमा समयानुकूल ऐन, कानूनको संशोधन र किसान अनुकूल, कृषक ऐन र कृषि विकास ऐन आजसम्म बनाउन नसक्नु पनि यस क्षेत्रको विकास नहुनुको एउटा कारण हो। त्यसतर्फ पनि ध्यान दिनु आवश्यक छ। उत्पादनलाई पनि विविधीकरण, प्रतिस्पर्धी र बजारमुखी बनाउन सकिएको छैन । कृषि रणनीतिको कार्यान्वयन कृषि विकास मन्त्रालयले मात्र गरेर पुग्दैन । यसको लागि सम्बद्ध सबै मन्त्रालय र लाइन एजेन्सीहरुको पनि त्यत्तिकै सहयोग चाहिन्छ। केन्द्रीय स्तरमा अन्तर मन्त्रालयमा समन्वयको अभाव देखिन्छ भने कार्यान्वयन तहमा सम्वद्ध सबै निकायहरुकाबीच समन्वय र सहकार्य हुनु पर्नेमा समन्वय र सहकार्य नहुनु विडम्बना नै भएको छ ।

भाग-३

कृषि विकास रणनीतिको विश्लेषण

आजसम्म आइपुग्दा धेरैवटा दीर्घकालीन कृषि नीति र रणनीति बनाई कार्यान्वयन पनि भइसकेका छन । पछिल्लो अवधिमा दीर्घकालीन कृषि नीतिको समीक्षा गर्दै यसले लक्ष्य प्राप्त गर्न नसकेको कारण नयाँ कृषि विकास रणनीति बनाई लागू हुने चरणमा छ । एपिपि भन्दा एडीएस संरचनागत रुपमा अझै उपयुक्त र विषयवस्तु केन्द्रीत छ। यसले एपिपि असफल हुनुको कारक तत्वहरूलाई विशेष ध्यानपूर्वक हेरेको छ, लक्ष्यहरू पहिचान गरेको छ र लक्ष्य प्राप्त भए नभएको मापन गर्ने सुचकाङ्क समेत सुझाएको छ। दातृ निकाय, सरोकारवाला निकायसंग छलफल भएपनि किसानसंग समेत समन्वय पर्याप्त समन्वय हुन सकेको देखिदैन। यो रणनीति निर्माणको क्रममा संसद र राजनीतिक तहमा पर्याप्त छलफल भएको देखिदैन। एडीएसले आगामी २० वर्षका लागि नेपालको कृषि क्षेत्रसंगै कृषि व्यवसायको पनि अभिवृद्धि हुने अपेक्षा लिएको छ । सरकारले तयार गरेको यो रणनीतिलाई असफल हुन नदिन कार्यन्वयन गर्ने निकाय, राजनैतिक दल, अन्य सरोकारवाला र विशेषतः खेतीमा संलग्न किसानहरुको रणनीति निर्माण र कार्यान्वयनमा सहभागिता र स्वामित्व हुनु जरूरी छ। सम्बन्धित सबैको जीवन्त सुझावहरुलाई समावेश गरी यो कृषि विकास रणनीतिलाई कृषकमुखी बनाई कार्यान्वयन गर्न आवश्यक छ। एडीएसको सोचले अन्तर्राष्ट्रिय मापदण्ड अनुसारको बजारमा प्रतिस्पर्धा गर्न सक्ने उत्पादनहरूतर्फ ध्यान दिनुपर्छ।

कृषिको विकास मुलुकको विकासको मेरुडण्ड मात्र नभई खाद्य संप्रभुता र खाद्य अधिकारको महत्वपूर्ण आधार पनि हो । मानिसको व्यक्तित्वसँग जोडिएको जमिनको न्यायपूर्ण स्वामित्व, सामाजिक प्रतिष्ठा र गौरव पनि हो । गरिबी निवारण, खाद्य सुरक्षा, रोजगारीको स्रोत नेपाली अर्थतन्त्रको मुख्य आधार पनि कृषि नै हो । यो बहुआयामिक सम्बन्ध राख्ने प्राकृतिक स्रोतमा आधारित जलवायु र मौसमको अनुकूलता प्रतिकूलतामा अन्तरनिर्भर रहने जैविक उत्पादन पद्धति समेत भएको प्राकृतिक वस्तु हो । यो कुरा रणनीति तयारी गर्दा विर्सनै नसकिने तथ्य हो । नेपालको सरकार संचालन र उसले परिकल्पना गरेको करिब १० वटा मन्त्रालय (कृषि, सिंचाई, जलस्रोत, आपूर्ति, उद्योग, सहकारी, स्थानीय विकास, भौतिक पूर्वाधार र शहरी विकास, अर्थ र शिक्षा मन्त्रालय) को प्रत्यक्ष अप्रत्यक्ष रुपमा सम्बन्धित विषय हो । यो रणनीति तर्जुमा गर्दा ती मन्त्रालयसँग ठाडो, तेर्सो अन्तरनिर्भरता र अन्तरसम्बन्धलाई प्रत्यक्ष सम्बोधन नभई यसले परिलक्षित गरेको लक्ष्य हासिल गर्न सकिँदैन । यी निकायविचको समन्वय विना यो सफल हुन सक्दैन। यसका सन्दर्भमा यथोचित सम्बोधन नभएको वर्तमान यथार्थलाई समितिले अत्यन्त महत्वका साथ लिएको छ।

वर्तमान कृषिमा संलग्न ६६ प्रतिशत जनसंख्यालाई खाद्यसुरक्षाको प्रत्याभूति गरी बाँकी ३४ प्रतिशत जनसंख्यालाई खाद्य सुरक्षा प्रदान गर्न थप उत्पादन वृद्धि अत्यन्त जरुरी छ । त्यसमा पनि तुलनात्मक लाभको बालीको उत्पादन गरी विशाल दुई छिमेकी मुलुकमा निर्यात गर्न सक्नु नै यसको लक्ष्य रहनु पर्दछ । यसको लागि खेती गर्ने किसानमा जमिनको स्वामित्वको प्रत्याभूति, कृषि उत्पादनका सहायक अन्य साधन स्रोतमा कृषकको सहज पहुँच, कृषि लगानीमा वृद्धि, सीमान्त किसानलाई कृषि उत्पादन लागतमा कम्तीमा ५० प्रतिशत अनुदानको सुनिश्चितता गरी कृषक ऐन र कृषि श्रमिक ऐनको नयाँ व्यवस्था गर्नु र यथोचित भौतिक पूर्वाधारसँग कृषि व्यवसायीकरणमा जोड दिँदै बजारको प्रत्याभूति र त्यसको नियमन कृषि रणनीतिको अनिवार्य आवश्यकता हो ।

नेपालको कृषि जल, जमिन, जंगलसँग जोडिएको मौलिक पद्धति हो र नेपालको पहिचान, संस्कृति र राष्ट्रियतासँग यसको अन्योन्यास्रित सम्बन्ध छ । कृषिमा आत्मनिर्भर भई खाद्य संप्रभुताको प्रत्याभूति गर्न नेपालको अन्तरिम संविधान,२०६३ ले मार्गानिर्देश गरेको छ । यसैको आधारमा हामी कृषि विकास रणनीति बनाउदैछौं । यसबाट निर्देशित भई कृषि नीतिको पुनर्संरचना र वर्तमान ऐन कानून र निर्देशनलाई पुनःपरिभाषित गर्नु पर्दछ । कृषि नीति कृषि कर्ममा लाग्नेकालागि हो भन्ने कुरा हामीले आत्मसात गरेका छौं । यसको तात्पर्य भूमिको स्वामित्व र अनुपस्थित जमिन्दारीको उन्मूलन र खेतीयोग्य बाँझो जमिनको उपयोग,भु-खण्डीकरण रोकी कृषि उत्पादन वृद्धि गर्ने र व्यवसायीकरण गर्ने चुनौति रहेका छन् । यसमा चक्लावन्दी, सामूहिक र सहकारी मार्फत खेती गर्नु र कृषिको व्यवसायीकरण गर्नु नै उत्पादन वृद्धिको लागि महत्वपूर्ण विषय हो । कृषि उत्पादन वृद्धिको महत्वपूर्ण स्रोत पानी अर्थात सिंचाई हो। कृषिको आधुनिकीरण र व्यवसायीकरणको नाममा Land Grabbingहुने र सिधै कृषिमा वैदेशिक लगानीको परिकल्पनाले नेपाली किसानको विस्थापन हुने क्रमशः किसान श्रमिकमा परिवर्तन हुने र नेपाल सुकुम्बासी र बेरोजगारहरुको थलोको बन्दै जान सक्ने खतरातर्फ हेक्का राख्नै पर्दछ ।

खाद्यान्नको आपूर्ति सुपरमार्केटबाट गरिने कोरा कल्पना नेपालको भौगोलिक विविधता, जलवायु र मौसमको विविधताले अनुमति नदिने कुरातर्फ पनि कृषि विकास मन्त्रालयको ध्यान जानै पर्दछ । कृषि रणनीति नेपाल र नेपालीको मौलिक पहिचान, गौरव, सामाजिक न्याय, जीविका र खाद्य सुरक्षा, रोजगारी र वैदेशिक मुद्रा आर्जन गर्ने प्रमुख स्रोत भएकोले यो रणनीतिको पुनर्संरचना गर्नु आवश्यक छ भन्ने कुरामा पुनः यहाँ जोड दिनु सान्दर्भिक देखिएको छ।

कृषि विकास रणनीतिका अनेकन सकारात्मक पक्ष हुँदा हुँदै पनि यसका केहि लक्ष्य र प्रक्षेपण यथार्थता भन्दा माथि र महत्वकांक्षी देखिन्छन। सन् २०२२ सम्ममा देशलाई अल्पविकसितबाट विकासोन्मुख मुलुक बनाउने जुन परिकल्पना गरिएको छ, त्यसलाई साकार रुप दिन कृषिको योगदान कति हुनु पर्ने हो ? दृष्टिकोण, उद्देश्य, रणनीति र कार्यक्रमबीच एकरुपता कसरी कायम गर्ने ? यसमा गैरसरकारी संस्थाको प्रतिनिधित्व र सहभागिता कसरी गराउने ? रणनीतिमा दाताहरुको प्रत्यक्ष प्रभाव नेपालको कृषि अनुकूल हुन सक्छ कि सक्दैन ? भन्ने प्रश्नहरु खडा भएका छन् । दातामा आश्रित रणनीति कार्यान्वयनमा सरकारी प्रतिवद्धताको अभाव रहेको देखिन्छ भने वीउवीजन उद्योग स्थापनाको विषय, कीटनाशक औषधि र रासायनिक मलको प्रतिकूल असरको विश्लेषण समेत यसले गर्न सकेको देखिदैन ।

कृषि वन र कृषि पर्यटनलाई सँगै लाने, सूचनारतथ्याङ्क अद्यावधिक गर्न नयाँ तथ्याङ्कको प्रयोग कसरी भएको छ ? कृषि र वन बीचको अन्तरसम्बन्ध के हो ? जलवायु परिवर्तनबाट कृषिमा पर्ने असर, पारिवारिक खेती मार्फत खाद्यान्नमा आत्म निर्भर हुन सक्ने अवस्था छ, छैन ? यो कुरा रणनीतिले स्पष्ट गरेको देखिदैन।

कृषिमा श्रम शक्ति बढाउने र वैदेशिक रोजगारीमा जानेलाई कृषि पेशामा आकर्षित गर्न प्रोत्साहन गर्ने ठोस र कामयावी प्रस्ताव पनि प्रस्तुत भएको पाइदैन । त्यसैगरी माटोको उपचार, जैविक खेती र यसको लागि क्षेत्र निर्धारण, कृषकको अधिकार, उत्पादकत्व बढाउने भूमिसुधार, भूमिको स्वामित्व, भू-उपयोग नीतिको कार्यान्वयन र सिमान्तकृत किसानको सम्बोधन, ठूला कृषिको संरचना अनुसारको भूमि उपलब्ध गराउने विषय, उब्जाउ भूमिको संरक्षण र जग्गा बाँझो राख्न नपाउने व्यवस्था, कृषिमा समावेशी, महिलाको संलग्नता, पहिचान र मूल्य श्रृङ्खलाको संयन्त्रका विषयलाई पनि रणनीतिले सन्तोषजनक उत्तर दिन सकेको पाइदैन।

यद्यपि नेपालमा कृषि उत्पादनमा यथेष्ट सम्भावना छ र रणनीतिले ती संभावनालाई उजागर गर्न महत्वपूर्ण भूमिका खेल्ने अपेक्षा गरिएको छ । न्यून लगानीको कृषि अनुसन्धान,किसानलाई जोड्ने प्रभावकारी संयन्त्रको अभाव, सिंचाईको न्यून उपलब्धता, मल, विउ लगायतका मुख्य सामग्री र पूर्वाधारको सीमित उपलब्धता लगायतका कारणले गर्दा उत्पादकत्व स्तर र वृद्धि न्यून छ। खाद्यान्न र कृषि सामग्रीको निर्यातमा वृद्धि र आयात प्रतिस्थापन हुन सकेको छैन। तथापि यी सम्भाव्यताको खोजी र चुनौतिको संबोधन गर्न रणनीतिले पर्याप्त आधार दिनेछ भन्ने अपेक्षा गर्न सकिन्छ।

भाग-४
निष्कर्ष

नेपालको समग्र कृषि विकासको लागि कृषि विकास रणनीति आवश्यक थियो र ठिक समयमा बने तापनि यो आफैमा पूर्ण दस्तावेज भने होईन। केही कमी कमजोरीहरू भएतापनि यसले नेपालको कृषि विकासको लागि एउटा वाटो भने देखाउने छ। रणनीतिको मस्यौदा निर्माणको प्रारम्भिक चरणमा किसान लगायत राजनीतिक तहमा आवश्यक छलफल नभए पनि किसान प्रतिनिधिहरु, कार्यान्वयन गर्ने निकाय र अन्य सरोकारवालाको सहभागितामा रणनीति तयार भएको देखिन्छ। नीति निर्माणमा संसद र संसदीय समितिको चासो रहनुपर्छ र नीति तथा रणनीतिमा संसदले अपनत्व लिनु पर्दछ र यो अपरिहार्य छ भन्ने ठानेर कृषि तथा जलस्रोत समितिले कृषि विकास रणनीतिलाई छलफलमा ल्याएको हो । संसद र संसदीय समितिले नीति निर्माणमा अपनत्व लिए पश्चात् यस्ता नीति अन्तर्गत बन्ने ऐन कानून निर्माणमा सहजता प्राप्त हुने र सुझावबाट नीति कार्यन्वयनमा समेत सरकारलाई सहजता प्राप्त हुनेछ।

रणनीतिमा केहि अष्पष्टता रहेतापनि यसले कृषि क्षेत्रको विकासका आधार, कृषि क्षेत्रले भोगेका समस्या तथा विगतको दीर्घकालीन कृषि योजना कार्यान्वयनमा देखा परेका समस्या केलाउने कोशिस गरेको छ। विगतको असफलता दोहोरिन नदिन सतर्कताका उपाय पनि खोजेको छ। समस्याको केही हदसम्म वस्तुगत विश्लेषण गर्न सफल भएको छ । यसले समग्र कृषि विकासको खाका प्रस्तुत गर्ने प्रयत्न गर्दै किसान अधिकारको प्रस्तावलाई अगाडि ल्याएको देखिन्छ । तर यसको समग्र प्रस्तुतीमा उच्च लगनीको आशा गरिएको छ । साना किसानको कृषि रुपान्तरण गर्न यस दस्तावेजलाई पूर्णता दिनुपर्ने केहि आवश्यकताहरू पनि छन। ती आवश्यकताहरू लाई समयक्रमसंगै परिमार्जन र पुनरावलोकन गर्नुपर्दछ।

यो दस्तावेजलाई गतिशील र जीवन्त दस्तावेजको रुपमा अगाडि वढाउनुपर्दछ । मस्यौदामा कृषि विकास रणनीतिको दूरदृष्टि, उद्देश्य, रणनीति र प्रस्तावित कार्यक्रमवीच सामन्जश्यता देखिदैन । यसका लागि प्रस्तुत सुझावहरुको गम्भीर अध्ययन र मस्यौदाको मसिनो चिरफार गर्न आवश्यक छ । साथै यसमा प्रक्षेपित उपलब्धिलाई व्यवहारिक बनाउन अहिले कृषि क्षेत्रमा देखा परेका महत्वपूर्ण परिवर्तित आयामहरु जस्तै आन्तरिक तथा बाह्य बसाई सराई, जलवायु मैत्री कृषि र खाद्य तथा पोषण सुरक्षा,अन्य मुलुकसँगको व्यापार सम्झौता जस्ता संवेदनशील पक्षहरुको वस्तुनिष्ट विश्लेषण जरूरी छ।

कृषि विकास रणनीति वहु मन्त्रालय, वहु सरोकार संघ, संस्था संलग्न भएको र सवैले मिलेर कार्यान्वयन गर्नु पर्ने विषय भएकोले यसको समन्वय र प्रभावकारी कार्यान्वयनको सवाल यो दस्तावेजको सबभन्दा कमजोर पक्ष देखिन्छ ।आगामी २० वर्षको नेपालको कृषि क्षेत्रको विकासमा यस रणनीतिले नै मार्गनिर्देशन गर्ने र ऐन, नियम, बजेट र कार्यक्रम समेतमा महत्वपूर्ण प्रभाव पार्ने भएकोले पनि यसको सफल कार्यन्वयनका लागि यो रणनीति निर्माण संगै कार्यन्वयनमा सम्बन्धित सवै निकायको चासो तथा सहभागिता र राजनीतिक स्वामित्वको जरूरी छ ।

यो दस्तावेजमा परिकल्पना गरेको प्रावधानवाट मात्र यो रणनीति कार्यान्वयन गर्ने हो भने यो अर्को दीर्घकालीन कृषि नीतिको असफलताको इतिहास बन्न सक्ने भएकोले कृषिको महत्व र यसले गरेका परिलक्षित पाँच पिलर र यसको अपेक्षा पूरा गर्न कृषि विकास मन्त्रालयको स्तर वृद्धि गर्न र मानव संसाधनको विकास र क्षमता अभिवृद्धि अपरिहार्य छ। यो रणनीति कार्यान्वयनका लागि अन्तर्मन्त्रालय समन्वयको अती महत्व रहेको हुँदा यसको

कार्यान्वयनको नेतृत्व प्रधानमन्त्री वा उपप्रधानमन्त्रीले नै लिनुपर्दछ भन्ने समितिको भनाई रहेको छ ।

वैदेशिक सहयोग (अनुदान र ऋण) लिनु हाम्रो वाध्यता र वर्तमान विकासको मोडेल भएको छ । तर दातृ संस्थाहरुको अनुदान तथा ऋण सहयोगका मोडेलहरु अत्यधिक शर्त सहित ऋणीहरुको अधिकार माथिको अप्रत्यक्ष हस्तक्षेप र सरकारको भूमिकालाई कमजोर बनाउने खालको देखिएको छ । दाताहरुबाट आएका सबै शर्त स्वीकार गरी वैदेशिक सहायता स्वीकार गर्ने र दोष अरुलाई पन्छाउने प्रवृति समेत विद्यमान छ । कुनै पनि वैदेशिक सहायता स्वीकार गर्दा हामी आफैंले व्यवस्थापन गर्न पाउने तथा आफ्नो हित र अधिकार सुनिश्चित गर्दै परामर्शदाता खर्च आयोजनाको कुल लागतको दुई प्रतिशतभन्दा बढाउन नपाइने गरी मात्र स्वीकार गर्ने पद्धति बसाल्नु पर्दछ ।

रणनीति निर्माणको प्रारम्भिक चरणमा छुटेका सरोकारवाला निकाय र किसानको सहभागिता हुन सकोस र छुटेका विषयहरू समेत समेटिन सकुन, राजनीतिक दल लगायत सबैको अपनत्व होस र कतिपय संरचनागत परिवर्तन, कानून परिमार्जन र स्रोत साधन व्यवस्थापनको कुरामा समेत स्पष्टता हुन सकोस र यसको सफल कार्यन्वयन हुन सकोस भन्ने ध्येयले समितिले छलफल गरेको हो। कृषि विकास रणनीतिको सफल कार्यन्वयनका लागि रणनीति निर्माण प्रकृयादेखि कार्यान्वयनतहसम्म सरोकारवाला निकायको संलग्नता, प्रतिवद्धता, कार्ययोजना र समन्वयको खाँचो रहन्छ। समितिले राखेको चासो र छलफलले यसतर्फ सबैको ध्यान केन्द्रित भएको छ र सरकारले समितिले सिफारिस गरेका सुझावलाई महत्वका साथ लिई रणनीतिमा आवश्यक परिमार्जन सहित कार्यान्वयन तहमा लैजानेछ भन्ने विश्वास समितिले लिएको छ ।

समितिले यो दस्तावेजलाई कागजमा मात्र सिमित रहन दिने छैन। समितिले नजिकवाट रणनीति कार्यान्वयनको अवस्था हेर्ने छ। प्रत्येक तिन महिनामा यसको कार्यान्वयनको प्रगतिको अवस्थाका वारेमा कृषि विकास मन्त्रालयले अनिवार्य रुपमा समितिमा जानकारी गराउनुपर्ने छ र समितिले आवश्यकता अनुसार सरोकारवाला निकायलाई बोलाई छलफल गर्नेछ। यसले सम्वन्धित निकायलाई थप जवाफदेही र जिम्मेवार वनाउने छ र रणनीतिको सफल कार्यन्वयन हुनेछ भन्ने विश्वास समितिले राखेको छ।

भाग-५

सुझावहरु

क्रस	सुझाव	
१	**सोच(Vision)**	कृषि विकास रणनीतिको प्रस्तावनामा "किसानको सम्मृद्धी, ग्रामीण औद्योगीकरणको आधार कृषि क्षेत्रको समग्र विकास सहित खाद्य सम्प्रभुता" भन्ने विषय समवेश गरि परिमार्जन गर्ने।
२	**सैद्धान्तिक अवधारणामा प्रष्टता**	● कृषि विकास रणनीतिको सैद्धान्तिक अवधारणा खाद्य सुरक्षा, खाद्य अधिकार र खाद्य सम्प्रभुता मध्ये कुन हो स्पस्ट रुपमा खाद्य सुरक्षा, खाद्य अधिकार र खाद्य सम्प्रभुतालाई परिभाषित गर्ने।
		● खाद्य सम्प्रभुताको दृष्टिकोणबाट केही थप लक्ष्य, योजना र कार्यक्रम थप गर्नुपर्ने। खाद्य सुरक्षालाई पर्याप्त रूपमा सम्बोधन गर्नुपर्ने।
		● रणनीति वनाउँदा जल, जङ्गल र जमिनको अन्तरसम्बन्धलाई सम्बोधन गरि कृषि विकासको अभिन्न अङ्ग वनाउनुपर्ने।
		● कृषि उत्पादनसंग सम्बन्धित किसान, जमिन, सिंचाई, मल, विउ, आधुनिक प्रबिधि, कृषि प्रसार सेवा, कृषि पूर्वाधार, उत्पादित वस्तुको भण्डारण, मूल्य श्रृङ्खला, बजारको सुनिश्चितता र कृषकलाई दिने अनुदान र वित्तीय सेवाको सहजताको विषयमा रणनीतिमा प्रष्ट व्यवस्था हुनुपर्ने ।
		● वैदेशिक स्रोत परिचालन(कुन कुन क्षेत्रमा कसरी)का विषयमा प्रष्ट हुनुपर्ने।
३	**कार्यदिशा**	नेपालको समग्र कृषि विकासका लागि वर्तमान परिस्थितिको आधारमा खाद्यमुखी र तुलनात्मक लाभको कृषि उपजको व्यवसायिक प्रवर्द्धनको लागि थप स्पष्ट वेग्ला वेग्लै कार्यदिशा तय गर्ने। यसो गर्दा: क. खाद्यमुखी कृषिका लागि साना किसानमा आधारित आत्मनिर्भर कृषि प्रणाली र यी किसानलाई दिने सेवा तथा लगानीको वेग्लै तर थप स्पष्ट खाका तयार गरिनुपर्ने। ख.तुलनात्मक लाभका लागि कृषि उपज तथा नगदेवालीको व्यवसायिक प्रवर्द्धन गर्ने, किसान र कृषि उद्यमका लागि वेग्लै लगानी तथा सेवाको रणनीतिक प्रस्ताव तयार गर्ने।
४	**कृषि उत्पादन र उत्पादकत्व वृद्धि**	● एडिएसले नेपाललाई कृषि क्षेत्रमा ५ प्रतिशत बृद्धि आवश्यक छ भनेको छ। एडीएसले बढेको कृषि उत्पादकत्वले नेपाललाई कसरी अविकसित राष्ट्रबाट बिकासोन्मुख राष्ट्रमा पुग्ने लक्ष्यमा मद्दत गर्छ भन्ने देखाउनु आवश्यक छ।
		● खेतीको तरिकामा सुधार गर्न सामुहिक खेती, करार खेती वा सहकारी खेतीको अवधारणालाई व्यवहारमा उतार्ने कार्यक्रम थप

		गर्ने।
		• उत्पादनका साधनहरूमा सहज, सरल र सुलभ पहुँच हुनुपर्ने, यस अनुसार उत्पादनका साधनमा दिईने अनुदान, कृषि प्रसार सेवाको विस्तार र प्रभावकारिता जस्ता विषयलाई स्पष्टसंग लेख्नुपर्ने।
		• उत्पादित कृषि उपजको भण्डारण, प्रशोधन, बजारीकरण र आवश्यकता र उपलब्धता अनुसार निकासी प्रवर्द्धन गर्न अपनाउनुपर्ने उपायका वारेमा स्पष्ट हुनुपर्ने।
५	**लगानी र कार्यान्वयन**	• कृषि विकास रणनीति कार्यान्वयनको तहमा लगानीको प्रश्न पेचिलो रुपमा रहेको छ । विगतका कृषि विकास नीति/रणनीति कार्यान्वयन गर्दा लगानीमा देखिएको अपर्याप्तताको अन्त्य गर्दै पर्याप्त लगानीको आधार र त्यसको उचित व्यवस्थापन सुनिश्चित गर्ने ।
		• कृषि विकास रणनीति कार्यन्वयनमा बजेट व्यवस्थापन लगायतमा अर्थ मन्त्रालयको महत्वपूर्ण भूमिका रहन्छ। त्यसैले अन्य सरोकारवाला मन्त्रालय जस्तै अर्थ मन्त्रालयलाई पनि Key Actorको रुपमा समावेश गर्ने।
		• कृषकलाई ऋण,अनुदानमा सरलीकरण गर्नुपर्ने, कृषकको अनौपचारिक लगानीलाई पनि मूल्यमा गणना गर्ने र कृषि परियोजनाको मूल्याङ्कन भारमा ५० प्रतिशत र धितोमा ५० प्रतिशत कायम गरि ऋण प्रवाह गर्ने अनिवार्य व्यवस्था गर्ने।
६	**कार्यान्वयन गर्ने निकाय विचको समन्वय र सहकार्य**	• कृषि विभिन्न विधाहरु समेटेको क्षेत्र हो। त्यसैले एडीएस कार्यान्वयन गर्ने निकायहरू (मन्त्रालयहरु, स्थानीय तह र आवश्यकता अनुसार निजी क्षेत्र समेत)ले एडिएस कार्यान्वयनमा अपनत्व लिने गरी सम्बद्ध निकायका वीच समन्वय र सहकार्यका लागि बन्ने संयन्त्रलाई थप प्रभावकारी बनाउने ।
		• एडीएसको लक्ष्य प्राप्तिका लागि विभिन्न निकायको फरक फरक जिम्मेवारी तोकिएको छ तर कार्यान्वयनको लागि संलग्न मन्त्रालयहरुको कामको परिधि स्पस्ट रूपमा चित्रित गरिएको छैन। मन्त्रालयहरूको योजना र कार्यक्रममा एकरुपता ल्याउदै एडिएस कार्यन्वयनका चरणमा पुग्नु पुर्व नै विभिन्न निकायको स्पष्ट भूमिका किटान हुनपर्ने।
		• एडीएसले रणनीति कार्यन्वयनका लागि विभिन्न संयन्त्र निर्माण गर्ने प्रस्ताव गरेको छ। यति धेरै संयन्त्रहरु बनाउँदा समेत कार्यान्वयन असफल भएको खण्डमा उत्तरदायित्व कसले लिने उत्तरदायित्वलिने निकायको अभाव देखिन्छ। अत: जवाफदेहिता कसको रहने भन्ने प्रष्ट स्पष्ट व्यवस्था राखिनु पर्ने । प्रधानमन्त्री वा उपप्रधानमन्त्रीको नेतृत्वमा कार्यान्वयनको नेतृत्व लिनुपर्ने।यो रणनीति कार्यान्वयनका

		लागि अन्तर्मन्त्रालय समन्वयको अती महत्व रहेको हुँदा यसको कार्यान्वयनको नेतृत्व प्रधानमन्त्री वा उपप्रधानमन्त्रीले नै लिनु पर्ने ।
		• हाम्रो जस्तो भौगोलिक विविधता र सामाजिक विभेद भएको मुलुकमा कृषि विकास रणनीतिलाई कार्यान्वयन गर्दा केन्द्र र क्षेत्रमा भन्दा स्थानीय तहमा अर्थात कृषकको खेतिवारीमा केन्द्रित गरिनुपर्दछ। त्यसैले स्थानीय निकायलाई वैधानिक समन्वयको व्यवस्था, मूल्याङ्कन, अनुगमन, सहजीकरण र कार्यन्वयनको नतिजा प्राप्तिको मूल जिम्मेवार निकायको रुपमा व्यवस्था गरिनुपर्ने।
		• कृषि प्राविधिकलाई स्थानीय निकाय मार्फत परिचालन गर्ने व्यवस्था गर्ने ।
		• मुलुक संघीय ढांचामा प्रवेश गरेपश्चात एडीएसको कार्यान्वयन कसरी गर्ने? भन्ने सन्दर्भमा स्पष्ट हुनुपर्ने।
		• आफ्नो समुदायमा नेतृत्वदायी भूमिका निर्वाह गरिरहेका स्थानीय कृषकहरुलाई एकजुट हुन र किसानको पक्षमा आफ्नो विचार र चासोहरुलाई अघि सार्न एडीएसले प्रोत्साहित गर्ने नीति अवलम्वन गर्ने।
७	**एडीएस ट्रष्ट कोष**	एडीएस ट्रस्ट कोषलाई पारदर्शी बनाउने र कोषमा किसानको उत्पादन वृद्धि र व्यवसायीकरणका लागि खर्च गर्ने स्पष्ट व्यवस्था गर्ने ।
८	**अनुगमन, मुल्याङ्कन तथा नियमन**	• कृषि विकास रणनीति नियमन कसले गर्ने भन्ने स्पस्ट छैन । कृषि विकास रणनीतिको तर्जुमा देखि कार्यान्वयन तथा सुपरिवेक्षणका लागि केहि संरचनागत व्यवस्था गरेको भएपनि समग्रमा कृषि विकास मन्त्रालयको मात्र जिम्मेवारी देखिन्छ। अतः एडिएसले प्रस्ताव गरेको अनुगमन नीति, प्रकृया र संरचनालाई थप प्रष्ट र प्रभावकारी बनाउने। कृषि विकास मन्त्रालयले नीति र योजना निर्माण, वित्तीय व्यवस्थापन र सहजीकरण गर्ने । परियोजना अनुगमन तथा मूल्याङ्कनको कार्य स्वतन्त्र तेस्रो पक्ष मार्फत गर्ने प्रावधानलाई थप प्रभावकारी बनाई त्यसको सिफारिसमा सम्बन्धित निकायलाई जिम्मेवार वनाईनुपर्ने। अनुगमनको लागि छुट्टै वजेट कोडको व्यवस्था गरिनुपर्ने
९	**मानव संसाधन विकास**	एडीएसको प्रभावकारी कार्यन्वयन गर्न मानव संसाधन विकासर क्षमता अभिवृद्धिलाई उच्च प्राथमिकता दिनुपर्ने।
१०	**कृषि शिक्षा, अनुसन्धान र प्रसार**	• कृषि विश्वविद्यालय, विद्यालय,प्रतिष्ठान र कृषि अनुसन्धान केन्द्रको स्थापना र विस्तार गर्नुपर्ने । विद्यालय तह देखि नै कृषि शिक्षाको व्यवस्था गर्ने। भौगोलिक रुपमा सचेत र संवेदनशील भएर सिपमूलक र व्यवसायिक कृषि शिक्षा प्रदान गर्ने।
		• कृषि शिक्षा, अनुसन्धान र कृषि प्रसारवीच आपसी तालमेल सहयोग र समन्वयका लागि निश्चित कार्यादेश सहितको

		अन्तरमन्त्रालय संयन्त्रको व्यवस्था(शिक्षा र कृषि) गर्नुपर्ने। कृषि प्रसारका लागि स्थानीय स्तरमा विद्यालयहरूलाई केन्द्रविन्दुको रुपमा विकास गर्ने।
		• अर्गानिक कृषि उपजको फाईदा, प्राङ्गारिक मलको प्रयोग जस्ता विषयमा खासगरि माध्यामिक तहका कक्षाहरुमा कम्तिमा महिनामा एक पटक कृषि विशेषज्ञद्वारा सचेतना अभिवृद्धि कक्षा लिने व्यवस्था गर्ने। शिक्षक तालिममा कृषिका विषय समावेश गर्ने।
		• नेपाल कृषि अनुसन्धान परिषदले सेवामूलक हिसावमा प्रविधि उपलव्ध गराउनुपर्ने। परिषद र विश्वविद्यालय विच समन्वय हुनुपर्ने।
		• गुणस्तरीय र Niche Productनै प्रतिस्पर्धात्मक हुने भएकोले अनुसन्धान आविस्कार गर्ने किसानलाई प्रोत्साहित गर्नुपर्ने।
११	**दीगो भूव्यवस्थापन**	• कृषि विकासको लागि भुमि सुधारको विषय महत्वपूर्ण छ । नेपालको कृषि जमिनको जटिलतालाई सम्बोधन गर्न कृषि रणनीतिले भुमिसुधार मन्त्रालयसंगको समन्वयमा भू-उपयोग तथा व्यवस्थापन कार्ययोजना रणनीति मै उल्लेख गर्ने । कृषि क्षेत्रका लागि जमिनको प्रयोग कसरी गर्ने भन्ने योजना तर्जुमा गर्ने।
		• कृषि योग्य जमिन र आवासको अन्योन्याश्रित सम्बन्ध छ, कृषि प्रयोजनको भूमिमा बस्ति बढेकोले वस्ति विकासलाई आवास क्षेत्रमा मात्र सुव्यवस्थित गराउनु पर्ने । भू-उपयोग नीति लागू गरी कृषियोग्य भूमिलाई सुरक्षित गरी कृषि भूमिमा खेती मात्र गर्ने व्यवस्था मिलाउनु पर्ने।
		• भूमिहीन किसानहरू(मुक्त कमैया, मुक्त कम्लरी, मुक्त हलिया, हरुवाचरुवा, दलित तथा पिछडावर्ग)हरूलाई सुरक्षित आवासको व्यवस्था गर्दै कृषि क्षेत्रका सवै सुविधा सहित करारमा जग्गा उपलव्ध गराउदै व्यवसायिक वनाउने र जमिन उपलब्ध गराउंदा राम्रो अनुगमन र मुल्यांकनको व्यवस्था गर्ने।
		• कृषि उत्पादन र उत्पादकत्व वृद्धिका लागि कृषिमा लाग्ने मोही किसानको भूमिका उल्लेखनीय छ। कानुनत द्वैध स्वामित्वको अन्त्य गरेपनि करिव ४ लाख भन्दा वढि वेदर्तावालहरू अर्काको जग्गा कमाई जीविकोपार्जन गर्दै आएका छन । काम गर्ने वास्तविक किसान जमिनहीन भएर कृषिको उत्पादकत्व वृद्धि हुन सक्दैन र सामाजिक न्याय पनि हुदैन। अतः उनीहरूको मागलाई संवोधन गर्ने गरि एडीएसमा व्यवस्था गर्ने।
		• पुर्व राजपरिवार, ठुला भूमिपति, धार्मिक प्रतिष्ठान र गुठीको स्वामित्वमा रहेको जमिनको उचित व्यवस्थापन गर्नुपर्ने।
		• कृषिमा उत्पादन बृद्धिको महत्वूर्ण पक्ष कृषि भूमिको चक्लावन्दी हो । सामुदायिक, सहकारी र निजी व्यवसायी मार्फत जमिनको चक्लावन्दीको नीतिगत व्यवस्था गरि सामूहिक खेती प्रणाली

		मार्फत कृषिको व्यवसायीकरण गर्न चाहनेहरुलाई निश्चित सीमा तोकी कृषिको पूर्वाधार सरकार मार्फत विकास गरि पहिलो वर्ष उत्पादन लागतको ५० प्रतिशत अनुदानको व्यवस्था गर्ने । यसको लागि आवश्यक कानुनी व्यवस्था गर्ने ।
		• जमिन वाँझो राख्न नपाउने कुरा कर (Tax)ले मात्र नियमन हुन नसक्ने हुँदा यसको लागि वैकल्पिक व्यवस्था गर्ने ।
१२	**सिंचाई**	• सिंचाईको सन्दर्भमा एडिएसले लिएको लक्ष्य र आर्थिक प्रक्षेपण तथा त्यसका लागि लाग्ने लागत र कार्यपद्दति एवं संरचना र सिंचाई मन्त्रालय र विभागले दिएको तथ्याङ्क र लागतमा तालमेल देखिदैन। यो विरोधाभाषलाई तत्कालै समाधान गरि समन्वयात्मक ढंगवाट कार्यक्रमलाई अगाडि वढाउनुपर्ने।
१३	**विउ विजन**	• परम्परागत स्थानीय र रैथाने बिउ तथा विजको सुरक्षा, संरक्षण र प्रर्वधन गर्ने । सोको लागि अगुवा किसानको संलग्नतामा सहभागितामुलक अनुसन्धानको व्यवस्था गर्ने । पेटेन्ट अधिकारको सुरक्षा गर्ने । • बिउ उत्पादनमा सम्बद्ध कृषकहरुलाई प्रोत्साहन गर्नुपर्ने र त्यस्ता कृषकहरुलाई बिमाको सुविधा उपलब्ध गराइनुपर्ने । साथै बिउ उद्योगको व्यवस्था गरि नीजि र सहकारी क्षेत्रलाई बिउ बिजनको व्यवसायिक उत्पादन गर्न प्रोत्साहित गर्नुपर्ने ।
१४	**प्राङ्गारिक कृषि**	• पहाडी भु भागलाई प्राङ्गारिकतर्फ उन्मुख वनाउन कृषकलाई अर्गानिक प्रमाणीकरण र कम्पोष्ट मलको प्रवर्द्धनको लागि अनुदानको व्यवस्था गर्नुपर्ने । छुट्टै "अर्गानीक जोन" को विकास गरि पकेट प्याकेज एप्रोचमा जैविक उत्पादनलाई प्रवर्द्धन गरिनुपर्ने ।
१५	**मलखाद**	• बढ्दो जनसंख्यालाई खाद्यान्न सर्वसुलभ उपलब्ध गराउनको लागि मलखाद महत्वपूर्ण साधन भएकाले मलको उपलब्धतालाई सहज र सुलभ बनाउनुपर्ने । अहिलेसम्म नेपालमा रासायनिक मलको कारखाना छैन त्यसैले रासायनिक मलको कारखाना स्थापना गर्ने कार्यलाई प्राथमिकतामा राख्नुपर्ने।
१६	**समयानुकुलता र पर्यावरण**	• भू-पर्यावरण संरक्षण र मौसम परिवर्तनको असरलाई न्युनिकरण गर्ने कार्यक्रमहरूलाई कार्यान्वयन गर्ने योजना बनाईनुपर्ने।
		• वाढी पहिरोवाट हुने भूक्षय र प्राकृतिक प्रकोपलाई कसरी व्यवस्थापन गर्ने भन्ने कुरामा ध्यान दिनुपर्ने।
		• कृषि विकास सम्बन्धी परियोजनामा कृषि र वन तथा जमिन र पानी बीचको सम्बन्धलाई सम्बोधन गर्दै वन मन्त्रालय र कृषि विकास मन्त्रालयले साझेदारी गरेर जडिबुटी र तिनीहरुको व्यवसायिक प्रयोगको प्रवर्द्धन गर्नुपर्ने। एडीएसले वन उद्योगको विकासको बिषयमा विशेषगरी NTFPs को बारेमा राम्ररी सम्बोधन गरेको छैन । त्यसैगरी यसले एग्रो–फरेस्ट्रीको महत्वलाई उजागर

		गर्नबाट चुकेको छ। यी विषयहरुलाइ संबोधन गर्न स्पष्ट कार्यदिशा तय गर्नुपर्ने।
१७	**किसानलाई वित्तीय तथा अन्य सुविधा**	● कृषि गणना अद्यावधिक गरि कृषकहरुलाई वर्गीकरण गर्ने र परिचयपत्र प्रदान गरि सोहि आधारमा किसानलाई दिने सेवा सुविधा सुनिश्चित गर्ने। सरकारले कृषकहरुलाई दिईरहेको सेवा र सुविधाको नजिकबाट अनुगमन गरि प्रगति मापन गरिनुपर्ने।
		● कृषकहरुलाई क्रेडिट कार्ड उपलब्ध गराउने।
		● कृषक मजदुरहरुको लागि पेन्सन कोषको व्यवस्था गरिनुपर्ने।
		● कृषिमा आधारित उद्योग दर्ता गर्न सरलीकरण गरि सहुलियतको व्यवस्था गर्ने।
		● कृषकको वर्गीकरण गरि आवश्यक रणनीति तर्जुमा गर्नुपर्ने आत्म निर्भर खाद्य सुरक्षाको ग्यारेन्टी गर्न प्रति एकाई जमिनको उत्पादकत्व वढाउनका लागि साना किसानहरुको कृषि लागतमा ५० प्रतिशत अनुदानको व्यवस्था गर्ने।
		● वजारलाई स्थानीय निकायबाट व्यवस्थापन र अनुगमन गर्न कार्यविधि बनाउने प्रस्ताव गर्ने। दुर्गम क्षेत्रमा कृषिजन्य सामाग्री ढुवानीमा किसानलाई अनुदानको व्यवस्था गर्ने।
		● प्रत्येक गाविसमा एउटा सहकारी बजार, संकलन र वितरण केन्द्र स्थापना गर्ने । कृषि व्यवसाय सुरु गर्न इच्छुक कृषकहरुले उपकरण र कच्चा पदार्थमा अनुदान पाउने व्यवस्था गर्ने।
		● मौसमी बेरोजगारी किसानलाई खाली समयमा समेत रोजगारी बनाउनेतर्फ रणनीतिले ध्यान दिनुपर्ने। कृषिमा महिलाको योगदानको उचित मूल्याङ्कन गर्दै महिला किसानको पहिचान, भूमिमा स्वामित्व र कृषि सुविधामा विशेष प्राथमिकता दिने।
१८	**बिमा**	● कृषि व्यवसाय विकासको साथसाथै विशेष वाली, स्थान र संभाव्य खतराको लागि नयाँ नमूना विमा योजना तर्जुमा गर्न व्यवसायिक विमाकर्तालाई कोष उपलब्ध गराउने।
		● विमासंग सम्बद्ध खतराहरु उच्च भएको र विमा गर्ने उचित माध्यम नबनाएसम्म व्यवसायीकरण सम्भव नहुने हुँदा विमामा नीजि क्षेत्रको लगानी सहजीकरण गर्न सरकारले पहिले उच्च मूल्य क्षेत्रमा नमूना बिमा योजना संचालन गर्ने र पछि अन्य क्षेत्रमा अनुशरण गर्ने।
१९	**मूल्य श्रृङ्खला**	● रणनीतिले मूल्य श्रृखलालाई प्राथमिकता दिए पनि सीमित गरेको छ । एडीएसले फलफुल, फूल खेती, मसलाजन्य वस्तु, मौरीपालन, मत्स्यपालन, र पोल्ट्रीमा कम ध्यान दिएको छ । तर यी वस्तुहरु पर्यावरणीय, पौष्टिक, आयात प्रतिस्थापन एवं निर्यात प्रवर्द्धन र रोजगारीको हिसाबले महत्वपूर्ण भएकोले मूल्य श्रृङ्खलामा समावेश गर्न उपयुक्त हुने ।

२०	**बाली संरक्षण तथा कृषि पर्यटन**	● लोपोन्मुख बालीहरुलाई संरक्षण र प्रवर्द्धन गर्ने।
		● विश्वका मूल्यवान जडिवुटी यार्चागुम्बा, गुच्ची च्याउ, बनलसुन, सतुवा, जटामसी, लोठसल्ला र चिराइतो आदिको व्यवसायिक खेती र प्रविधिको विकास गर्ने। यस बाहेक कागुनो, कोदो, फापर र जौ लगायतका बालीहरुको संरक्षणलेकृषि पर्यटनमा आकर्षण बढाउन सक्ने हुँदा स्थानीय खाद्यवस्तुको मूल्य श्रृङ्खलालाई सुधार गर्ने। ।
		● कृषि पर्यटनलाई ध्यानमा राख्दै विविध भौगोलिक स्थानमा उत्पादन हुने स्थानीय खाद्यान्नलाई उन्नत बनाउने र स्थानीय खाद्य परिकारको विविधताको विकास र विस्तार गर्नुपर्ने।
		● विश्वको उच्चतम स्थानमा उत्पादन हुने मार्सी प्रजातिको धान लगायत कृषि बाली हरुको संरक्षण विकास र विस्तार गर्ने।
२१	**शितभण्डार**	● उत्पादनका आधारमा उपयुक्त ठाँउमा शितभण्डार निर्माण गर्ने व्यवस्था मिलाउने।
२२	**खाद्य स्वच्छता र गुणस्तर**	● हाल रहेका खाद्य गुणस्तर मापन गर्ने प्रयोगशालाहरुको स्तरोन्नति गरिनुपर्ने। सुदृढ र गुणस्तरयुक्त मासुकालागि बधशाला तथा मासु निरीक्षण गर्न बनेको ऐनको यथाशीघ्र कार्यान्वयन गरिनुपर्ने।
२३	**एक घर एक बगैचा**	मौसम अनुसार बढी उत्पादन हुने एक फलफूल खेती र अन्न वालीलाई मुख्य बाली बनाई सोही अनुसार बगैंचाको व्यवस्था गरी एक घर एक बगैंचाको व्यवस्था गर्नुपर्ने ।
२४	**वौद्धिक सम्पत्ति**	नेपालमा बौद्धिक सम्पतिको अधिकारकोलागि कानून तर्जुमा गरिएको भए तापनि त्यस कानुनले बाली संरक्षण तथा पर्यावरणीय सुरक्षालाई समेट्न सकेको छैन। कृषि क्षेत्रको व्यवसायीकरणको लागि बौद्धिक सम्पतिको संरक्षण आवश्यक रहेकोले कृषि मन्त्रालयले उद्योग मन्त्रालयसंग समन्वय गरि बौद्धिक सम्पतिमाथिको अधिकारबारे स्पस्ट हुनुपर्ने।
२५	**अन्य**	● विभिन्न चरणमा भएका छलफल तथा सुझावहरु अनुसूचीमा छन् त्यसलाई आवश्यकता अनुसार मस्यौदा रणनीतिमा समावेश गर्नु गर्ने।
		● नेपाल सरकारवाट बनाउने जुनसुकै नीति, रणनीति र लिखतहरू नेपाली भाषामा सवैले बुझ्ने गरि बनाउनु पर्ने ।
		● जुनसुकै नीति/रणनीति तर्जुमा गर्दा संसद वा विषयगत संसदीय समितिमा छलफल गराउने र जनप्रतिनिधिहरूको राय लिई नीति निर्माण गर्नु पर्ने । जसका कारण ऐन नियम निर्माणमा समेत सहजता हुनसक्छ ।

APPENDIX 7. SUGGESTIONS REPORT FROM NATIONAL PLANNING COMMISSION

प्रस्तावित कृषि विकास रणनीति(ADS) को अन्तिम प्रतिवेदन माथि राय सुझाव

देशको कूल गार्हस्थ उत्पादनको एक तिहाई भन्दा बढी कृषि क्षेत्रबाट प्राप्त हुने र करिब दुई तिहाई जनसंख्या जिविका तथा रोजगारीको लागि यस क्षेत्रमै निर्भर रहने भएकोले कृषि क्षेत्रलाई नेपालको अर्थतन्त्रको मुख्य अवयवको रुपमा लिन सकिन्छ । नेपालको अन्तरिम संविधान, २०६३ ले समेत खाद्य संप्रभूतालाई मौलिक हकको रुपमा स्थापित गरिसकेको र कृषिलाई उद्योगको रुपमा स्थापित गर्ने नीति समेत अंगीकार गरिसकेकोले यस क्षेत्रको महत्व अझै अभिवृद्धि भइरहेको छ । अन्तरराष्ट्रिय स्तरमा खाद्य पदार्थहरुमा भैरहेको मूल्य वृद्धि, उत्पादनशील जनशक्तिको दैनिक विदेशिने क्रमको बढोत्तरीले कृषि क्षेत्रमा श्रम शक्तिको अभाव हुदै गएको वर्तमान अवस्था, जलवायु परिवर्तनको नकारात्मक प्रभाव जस्ता हाल देखिएका टड्कारो चुनौतीहरुको सामना गर्दै देशको भौगोलिक परिवेश अनुकलको उन्नत बीउ विजन र प्रबिधि,कृषि उद्यमी र सीमान्त कृषकवर्गको चाहना, सहस्राब्दी विकास लक्ष्यहरु, कृषि तथा पशुपंक्षीजन्य उत्पादनमा व्यवसायीकरण जस्ता महत्वपूर्ण पक्षहरुलाई आत्मसात गर्दै कृषि पेशालाई सम्मानजनक बनाई आय तथा रोजगारी सृजना, गरिबी न्यूनीकरण, दिगो र सन्तुलित विकास, खाद्य तथा पोषण सुरक्षा र आर्थिक रुपान्तरणमा कृषि क्षेत्रको योगदान बढाउने लक्ष्य प्राप्तीको महत्वपूर्ण औजारको रुपमा समयानुकुल कृषि विकासको रणनीति हालको एक टड्कारो आवश्यकताको रुपमा रहेको छ ।

यसै सन्दर्भमा, कृषि विकास मंत्रालय तथा राष्ट्रिय किसान सञ्जालको सहकार्यमा विभिन्न राष्ट्रिय / अन्तराष्ट्रिय संस्था/संगठनहरुको सहयोगमा निर्मित २० वर्षे रणनीतिक योजनाको प्रस्तावले कृषि क्षेत्रको विगतलाई राम्ररी केलाएको छ भने बर्तमान अवस्थाको गहन विश्लेषण गरेर भविष्यको सही मार्ग चित्रण गर्न उल्लेख्य प्रयाश गरेको देखिन्छ ।

प्रस्ताव निर्माणमा संलग्न सबैको इमान्दार प्रयाश र सहकार्यबाट हाम्रो जस्तो कृषि प्रधान देशका जनताहरुको जीवनको प्रमुख आधार क्षेत्रको रुपमा रहेको कृषि हाल कुन धरातलमा छ र यस क्षेत्रको विकास तथा विस्तारबाट नेपालीहरुको जीवनस्तर उच्च बनाउन भावी दिनहरुमा अख्तियार गर्नुपर्ने बाटो देखाउने उचित प्रयत्न भएको कुरामा दुईमत छैन । रणनीतिले आगामी २० वर्षमा कृषि क्षेत्रको संरचनामा व्यापक परिवर्तन ल्याई कृषि र सम्बद्ध अन्य क्षेत्रहरुबीचको सुदृढ समन्वयबाट ग्रामीण गरिबी निबारणको अपेक्षा समेत गरेको छ, जुन आफैमा सह्रानीय पक्ष हो ।

राय सुझावको लागि प्रतिवेदनको प्रस्ताव प्राप्त भएपछि राष्ट्रिय योजना आयोग भित्र तथा बाहिरका सम्बन्धित क्षेत्रका जानिफकार तथा विद्वानहरुसंगको लिखित तथा मौखिक सल्लाह र अन्तरक्रिया समेतको आधारमा कृषि विकास रणनीतिलाई अंझ परिष्कृत, प्रभावकारी तथा उद्देश्योन्मुख बनाउंन देहाय बमोजिमका राय,सुझावहरु पेश गरिएको छ :-

नीतिगत सवाल

समयानुकूलको कृषि विकास नीति लागु गरी सो को सफल कार्यान्वयन मार्फत् अपेक्षित उपलब्धी हांसिल गर्नको लागि नीति आउनु पूर्वको अवस्था र विद्यमान(हालको)अवस्था बीच के कस्तो Gapरहेको छ सो सम्बन्धमा गहन बिश्लेषण गरेको खण्डमा नीति अंझ बढी प्रभावकारी र फलदायी हुने देखिन्छ । यस दृष्टिले हेर्दा कृषि क्षेत्रमा उद्देश्य पूर्तिमा बाधक रहेका रहेका खास समस्याहरु के के सो को सही पहिचान गर्न सकेमा भावी दिनहरुमा त्यस्ता समस्याहरुबाट सहज उन्मुक्ति पाउँन सकिन्छ ।

- कुनै पनि नयाँ नीति अवलम्बन गर्दा नीतिको आवश्यकतालाई प्राथमिकताक्रममा अगाडि राख्दा क्रमबद्धता देखिने भएकोले "ADS को आवश्यकता" को बारेमा पनि अन्तिममा नभएर शुरुमा उल्लेख गर्दा उपयुक्त देखिने हुन्छ। साथै ADS हाम्रो देशको कृषि क्षेत्रको उत्थान र विकासको लागि एउटा भरपर्दो मार्गदर्शन भएकोले यसलाई Project को रुपमा नभई वास्तविक Strategic Document को रुपमा स्थापित गर्नेतर्फ ध्यान केन्द्रित गरिनुपर्ने देखिन्छ।
- रणनीतिमा सरकार, निजि क्षेत्र तथा अन्य सरोकारवालहरुको लगानी हाल कुन कुन क्षेत्रमा कति कति रहेको आगामी अवधिमा कुन क्षेत्रमा कति-कति प्रतिशत हुनुपर्ने हो सो सम्बन्धी स्पष्ट रुपमा उल्लेख गर्दा लगानीकर्ता र स्वयं सरकारको तर्फबाट समेत उचित समयमा ठोस निर्णय गर्न मद्दत पुग्न जाने देखिन्छ।
- नीतिमा रहेको केही बाक्यांशहरुमा देहाय बमोजिम थपघट गर्दा थप प्रभावकारी हुने देखिएकोले राय पेश गरिएको छ :
  - **Vision**को अन्तिम बाक्यांशको पछाडि**Situation and Food Sovereignty**थप्नुपर्ने,
  - **StrategicFrameworkOf the ADS**को नं. १ मा **Increase agricultural productivity and Production**राखिनुपर्ने र सोही तालिकाको नं.१ मा राखिएको **Food and NutritionSecurity**को पछाडि **and Food Sovereignty**थप्नुपर्ने,
  - **Prominent Issue**को पहिलोको **at**भन्दा पछि **Higher and wider level**थप्नुपर्नेसाथैसोही **Box**को अन्तिममा देहायका बुँदाहरु थप्नुपर्ने :-
    - Support from other relevant stakeholders
    - Stability of agri commodity prices.
    - Terade Inbalance Issues.
- **Issues discussed and agreed with National Peasant Coalition**मा **Minimum support price**को कति **Possibility**छ र सो सम्बन्धमा हालसम्म देखिएको **Practice**कस्तो छ त्यो विषयमापर्याप्त बश्लेषणगरिनुपर्ने देखिन्छ। साथै नीति मार्फत् किषि क्षेत्रको व्यवसायिकरण गर्न र आयात प्रतिसथापन गर्नको लागि **Cosmetic Commodity** मा प्रयोग हुने कृषि उत्पादनको पहिचान गरी सो को विस्तार गर्ने तर्फ स्पष्ट सोच **ADS**मा देखिनुपर्छ ।
- कृषि उत्पादन र उत्पादकत्व बढाई रोजगारीमा अभिवृद्धि गर्ने र गरिबी न्यूनीकरण गर्ने ध्येयको प्राप्तिको लागि निरन्तर भइरहेको वनजंगलको विनाश र पशुपालक कृषकहरुको संख्यामा आइरहेको गिरावटलाई कसरी संबोधन र उचित ब्यवस्थापन गर्न सकिन्छ सो सम्बन्धमा नीतिले प्रभावकारी कार्यक्रमहरु समाविष्ट गर्न सक्नुपर्दछ ।

- रणनीतिले पछाडि परेका वर्ग र क्षेत्रलाई संवोधन गर्नुपर्दछ, जसबाट उनीहरुको **Ownership** र **Accountability**दुबै पक्षमा अभिबृद्धि भई कृषि क्षेत्रको विकासमा टेवा पुग्न जान्छ।

<u>तथ्यांक सम्बन्धी सवाल</u>

- तथ्यांक एउटा यस्तो **Tools** हो जसको सहायताबाट मात्र हामीले हरेक अपूर्ण ज्ञानलाइ पूर्णता प्रदान गर्न सक्छौं र हाम्रा हरेक खोज तथा अन्वेषणलाइ वास्तविक बनाउंन सक्षम हुन्छौं । अतः रणनीतिको प्रस्तावमा समाविष्ट **Growth Forecast**वास्तिवक तथ्यमा आधारित हुन सकेमा आफैमा नीतिको एक सवल पक्ष हुन जाने देखिन्छ । यसका अतिरिक्त प्रतिवेदनको **Phases Of the ADS** मा उल्लेखित तथ्यांकहरु सन् २०११ मा संकलित भएको देखिएकोले वास्तविकता पहिचानको लागि तथ्यांकहरु अद्यावधिक हुनुपर्ने देखिन्छ ।
- सिंचित क्षेत्रमा अभिवृद्धि हुदा स्वभावैले यसबाट प्रभावित हुने बालीहरुको उत्पादनमा पनि सकारात्मक बढोत्तरी हुनजान्छ । अतः सिंचित क्षेत्रमा बृद्धि हुने दर भन्दा धान उत्पादनको दर धेरै न्यून हुने तथ्यांक राखिनु स्वभाविक नदेखिएकोले यस तर्फ पुनर्बिचार गरिनुपर्ने देखिन्छ । साथै रणनीतिमा आगामी५ वर्षमा ब्यापार घाटा सून्य गर्ने लक्ष्य राखिएको छ जुन कुराको भरपर्दो आधार देखिदैन र सो लक्ष्य प्राप्त गर्न यथार्थमा संभव छ कि छैन उक्त तथ्य तर्फ पुनः एकपटक सोच्नुपर्ने देखिन्छ ।

<u>संस्थागतसवाल</u>

- हरेक कार्यक्रमको सफल कार्यान्वयनको लागि त्यससंग सम्बन्धित नीतिगत संस्थागत र प्रकृयागत पक्षहरुको महत्वपूर्ण भूमिका रहेको हुन्छ। कृषि क्षेत्र जनताको दैनिक जिवीकासंग जोडिएको एक संवेदनशील क्षेत्र भएकोले यसलाई देशको बदलिंदो राजनीतिक परिवेश र राज्यको पुनर्संरचनाको अवस्थालाई समेत ध्यान राखेर संस्थागत सुदृढीकरणको लागि नीतिले उचित मार्गदर्शन गर्न सक्नुपर्दछ । अतः यसको लागि नीतिले समेटेका केही बुंदाहरुमा देहायबमोजिम बाक्यांश र शब्दावलीहरु थपघट गर्न आवश्यक देखिएकोले सुझाव दिईएको छः

- **Priorities Of the ADS**को **Productivity df Restructuring and Strengthening**या**research,extension and agri-education system**थप्नुपर्ने,
- **Composition of ADS Implementation Committee**अन्तरगत **Officiating Members**मा **Hon.VC(NPC)**को सट्टा **Hon.Member(Agri.)**र **Co-ordinating committee** मा पनि **Hon.Member(Agri.)NPC**र

१ जना पोाषण सम्बन्धी**EXPERT** थपिनुपर्ने तथा**Secretaries from**को पछाडि **concerned** थप्नुपर्ने, सोही अनुच्छेदको अन्तिम कोष्ठमा रहेको **Nominated by Maximum 2 GON** हुनुपर्ने,

- **National ADS Co-ordination Committee**को **Officiating Members**को **Top**मा **Hon.Member (Agri) NPC**थप्नुपर्ने र सोही **Box**को **Sub committees**मा **DOA, DOI and DOLIDAR,NARC,Food Technology and Quality cotrol Department**थपिनुपर्ने,

➢ प्रायः नीतिहरुको कार्यान्वयन अक्षरसः हुन नसक्नु र यसले अपेक्षित प्रतिफल हाँसिल गर्न नसक्नुको मुख्य कारण कमजोर अनुगमन तथा मूल्यांन प्रणाली हो भन्ने कुरामा सहमत हुनेहरुको ठूलो संख्या रहेको वर्तमान अवस्थामा कृषि नीतिको सफल कार्यान्वयन भएनभएको सम्बन्धमा यसका प्रत्येक क्रियाकलापहरुको गुणस्तर परिमाण र लागत पक्षको नियमित र आवधिक अनुगमन मूल्यांकन गरी निर्दिष्ट उद्देश्य प्राप्त गर्न **ADS** को**Monitoring and Evaluation**तथा**Implementation**मा राष्ट्रिय योजना आयोगको भूमिकालाई प्राथमिकता दिईनुपर्ने देखिन्छ ।

➢ नीति र कार्यक्रमहरुको उद्देश्यमूलक कार्यान्वनको लागि वर्तमान आवश्यकतालाई समेत मध्यनजर गर्दै लक्षित वर्ग र क्षेत्रले सहज सेवा सुविधा उपभोग गर्न पाउने अवस्थाको सुनिश्चितता प्रदान गर्न वदलिदो परिस्थिति अनुरुपको छरितो, चुस्त र प्रभावकारी संगठन संचालन गर्न सक्ने हेतुले कृषि विकास मंत्रालयको संरचनामा ब्यापक परिवर्तन गर्ने तर्फ नीतिले स्पष्ट मार्गदर्शन गर्न सक्नुपर्छ ।

<u>अनुसन्धान क्षेत्र</u>

➢ कृषिसंग सम्बन्धित बिबिध अध्ययन र अनुसन्धानको कार्यलाई परिणाममुखी बनाउदै आधूनिक कृषि प्रणालीको अवलम्वन र सो को पहुँचमा विस्तार गर्न **National Agriculture Research System** र कृषिसंग सम्बन्धित अन्य **Academy** हरुको बारेमा रणनीतिमा प्रष्ट धारणा आउनुपर्दछ । साथै अनुसन्धानको क्षेत्रमा कति लगानी गरिने भन्ने कुरा स्पष्ट रुपले उल्लेख नगरिएकोले सो कुरा नीतिमा नै प्रष्ट पारिनुपर्दछ ।

➢ सामुदायिक कृषि विकास केन्द्रमा अनुसन्धानलाई कसरी अगाडि बढाउने भन्ने सम्बन्धमा स्पष्ट उल्लेख गरिनुका अतिरिक्त कृषि अनुसन्धान, शिक्षा र प्रसारलाई एक आपसमा कसरी Linkageगर्ने हो सो सम्बन्धमा रणनीतिले प्रष्ट मार्ग निर्देश गर्नुपर्ने देखिन्छ ।

- NARC कोRestrucuringगर्ने भन्ने कुरा मात्र ब्म्क मा देखिएकोले उक्त शब्दले पुनर्संरचना अनुसन्धान पद्धतिमा गर्ने हो कि संस्थामा गर्ने हो सो कुरा प्रष्ट पार्न नसकेको हुदा पुनर्संरचना गरिने पक्षको बारेमा र पुनर्संरचना पछि निर्माण हुने ढाँचाको बारेमा नीतिले स्पष्ट व्याख्या गरिनुपर्ने देखिन्छ ।

<u>क्षमता विकासको क्षेत्र</u>

- हरेक क्रियाकलाप वा विकासको कर्ता मानव श्रोत नै हो । अतः नीति कार्यान्वयनको पक्षलाई सफलिभूत पार्नको लागि उपयुक्त व्यक्तिलाई उचित समयमा उचित स्थान र अवस्थामा कार्यको लागि तत्पर बनाईराख्न सफल भएमा मात्र हामी आफ्नो गन्तव्यउन्मुख हुन सक्दछौं । यस तथ्यलाई ख्याल राखेर कृषि क्षेत्रमा मानव स्रोत व्यवस्थापन (**HRM**) र सशक्तिकरणबारे उल्लेख गरिनुपर्छ, साथै कृषि क्षेत्रमा आकर्षण बढाउन उचित मानव स्रोत विकास (HRD) सम्बन्धी रणनीतिको जरुरी छ ।
- Bio-Technologyसशक्त नभई कृषि अनुसन्धान प्रभावकारी नहुने हुदा Bio-Technology को सशक्तिकरणबारेADS मा उचित कार्यक्रम राखिनुपर्दछ ।

<u>खाद्य र पोषण सम्बन्धमा</u>

- खाद्य सुरक्षाका प्रमुख ४ स्तम्भहरु उपलब्धता, पहुँच, उपयोग र स्थिरता मध्ये प्रथम आधारस्तम्भ उपलब्धता पूर्णतः कृषिमा निर्भर गर्दछ । अतः पोषण र खाद्य सुरक्षाका पक्षलाई उचित तवरले संवोधन गर्न कृषि नीतिले यस सम्बन्धमा ध्यान दिनु अनिवार्य हुनजान्छ । यसै परिप्रेक्ष्यमा हाम्रो तेह्रौं योजनाले समेत खाद्य तथा पोषण सुरक्षाका सबै पक्षहरुलाई सबल पार्दै नागरिकको खाद्य सम्प्रभूता अधिकार सुनिश्चित गर्ने दीर्घकालिन सोच राखेको सन्दर्भलाई समेत ख्याल गर्दा नीतिमा खाद्य सुरक्षा सम्बन्धी सवालहरुलाई प्राथमिकताका साथ उल्लेख गरिनुपर्दछ। साथै खाद्य र पोषण सम्बन्धमा कृषि र स्वास्थ्य मंत्रालयबीच कार्यमा अस्पष्टता र दोहोरोपन नहुने गरी स्पष्ट जिम्मेवारी किटान गरिनुपर्दछ ।

<u>निजी क्षेत्रको सवाल</u>

- मुलुकले खुला अर्थतन्त्रको नीति अवलम्बन गरेदेखि नै निजी क्षेत्रलाई उत्पादन, बितरण र रोजगारी सृजनाको क्षेत्रमा साझेदार बनाउने अभ्यास निरन्तर रुपमा भइरहेको छ । एकातिर सरकारी तथा निजी क्षेत्रको साझेदारीमा ठूलाठूला विकास निर्माणका कार्यहरु संचालन भइरहेको अवस्थामा छ भने अर्कोतर्फ निजी क्षेत्र तत्काल लाभ हुने क्षेत्रमा बढी आकर्षित हुने र दीर्घकालिन लाभ प्राप्त हुने पूर्वाधार निर्माण एवं औद्योगिक क्षेत्रको विकासमा कमै मात्र केन्द्रित भएको विद्यमान अवस्थामा कृषि उद्यम तथा व्यवसायमा निजी क्षेत्रको आकर्षण बढाउने खालका नीति अवलम्बन गर्नु जरुरी छ ।
- कृषि कार्यमा निजी क्षेत्रको अपनत्व भावमा अभिवृद्धि गर्न र लगानीको वातावणको सुनिश्चितताको लागि **Private Sector** को भूमिका**Action Plan**मा नै स्पष्ट पारिनुपर्दछ । **Cost of the ADS (10 Years)मा Private**

sector/Communityको योगदान प्रतिशत कम्तिमा २०५ तोकेर नै राखिदिदा थप सुनिश्चितता प्रदान गर्न सघाउ पुग्ने देखिन्छ ।

- कृषि क्षेत्रमा निजी क्षेत्रको लगानी अभिवृद्धि गर्न लगानी मैत्री वातावरणको सृजना गर्न सकेमा कृषि क्षेत्र मार्फत मुलुकको आर्थिक विकास र रोजगारीका अवसरहरुमा अभिवृद्धि हुने हुदा त्यसतर्फ उचित नीतिगत प्रबन्ध हुनुपर्दछ ।

<u>सम्बन्धित अन्य क्षेत्रको सवाल</u>

- कृषि एक वहुआयामिक क्षेत्र भएकोले कृषि सम्बन्धी राष्ट्रिय नीति निर्माण गर्दा यससंग प्रत्यक्ष वा परोक्ष रुपले सरोकार राख्ने विषय, क्षेत्र वा निकायहरुलाई नजर अन्दाज गरिदा यसले समग्र नीति कै सफल कार्यान्वयनमा असहजता सृजना गर्न सक्दछ । अतः नीति तर्जुमा गर्दा यस्ता महत्वपूर्ण सरोकारवाला पक्ष वा क्षेत्रलाई उचित तवरले संबोधन गर्न सकेमा नीति फलदायी हुनसक्छ । अन्य पक्षहरुको अतिरिक्त नीतिले समेट्नुपर्ने केही पक्षहरुको सम्बन्धमा निम्नानुसार राय व्यक्त गरिएको छ :

- **Agri Input** (मलखाद तथा बीऊ) **Institutes** बाटस्पष्टरुपमा **Commitment**हुनुपर्दछ ।
- **Donor**हरुबाट कृषि क्षेत्रमा गरिने लगानी सम्बन्धमा कुन कुन क्षेत्रमा कति अबधिसम्म के कति लगानी गरिने हो सो सम्बन्धमा प्रष्ट प्रतिबद्धता हुनुपर्दछ ।
- सिंचाईबाट स्पष्ट **Commitment** आउनुपर्ने,
- **Land use policy**संग **ADS** लाई **Adjust** गरिनुपर्ने,
- **Local level** को**basket fund**कसरी संभव हुन्छ र यदि संभव छ भने त्यसको आधार के हो भन्नेबारे रणनीतिमा प्रष्ट उल्लेख हुनुपर्ने,
- नीति कार्यान्वयनलाई प्रभावित गर्न सक्ने विषय "जलवायु परिवर्तन","संघीयता" जस्ता महत्वपूर्ण सवालहरुमा ध्यान दिनुपर्दछ ।

END OF REPORT: 2